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EDITORIAL

THE DOCTOR IN THE MOVIES.

The scenario designers and picture producers appear so far to have completely failed to portray the physician with any adequacy or even scant justice. Seldom, if ever, has any picture we have seen, or heard of, or read about ever presented a doctor in any role of importance. This, if all, might be overlooked, although it would not be difficult to find characters heroic, interesting, or pathetic among physicians, ancient or modern, either in history or in fiction.

What is annoying and irksome, not to say painful, is to witness the same inane type brought forward over and over again,

with slight variations, whenever the story makes it expedient to introduce a doctor into the scene.

Here is the way he is shown. Though fairly well dressed, he does not exemplify the fashion of the practitioner of long ago, nor yet that of the up-to-date doctor. Never the bluff, kindly, carelessly gotten up country doctor, neither is he the trim, alert city doctor. Even his beard is a cross between the full one of years ago and the absent one of to-day. He is unintelligent, uninterested as well as uninteresting, even unconcerned. He walks in stiffly, deposits his bag (always has a bag), asks nothing and is told the same, immediately pulls out a watch and places a finger near where the pulse ought to be; returning the watch to its pocket, he either shakes his head slowly from side to side (which means the patient is dead or will die) or nods up and down quickly (meaning the patient is or will be all right), picks up bag, bows stiffly, walks out equally stiffly.

The only compensating feature in this idiotic performance is the compliment to the profession by implication to the effect that a diagnosis is invariably made most easily and quickly and that the prognosis follows immediately and unhesitatingly, for the only means of reaching a conclusion we have ever seen used by a movie doctor besides counting the pulse is the raising of one eye-lid (the patient's).

Of course we are not in favor of showing to the public the practical application of the apparatus used for a favorite medication of the time of Molière nor the complete technic of a thorough physical examination, but, please, movie producers, give us sometimes a doctor who looks like one and acts a little like a rational human being who is trying to learn something about the patient and is both able and willing to help him.

If it be the correct thing to show us the heroine writing a note and licking the stamp before attaching, to visualize the hero talking at the phone to his girl and flicking the ashes from his cigarette meanwhile, it can not be out of place to flash on the screen a physician who does something a little naturally and is a little more than an automaton.

Speaking a little more seriously on the moral side, we must object to the serious reflection cast on the profession, also by implication, when for instance an agonized father commits burglary to get money for the doctor who will not attend the sick

child without it. Scenes analogous to this are too often shown. No doubt there are mercenary and even criminal men in the profession, but the multitudes of free clinics and hospitals served gratuitously by physicians testify to the fact that the majority are not callous or grasping. The other side should be shown sometimes for a change.

Criticism of photoplays and their morals might lead us far and it is not our intention to be grouchy, still we do want to plead for a truer and fairer exposé on the screen of the doctor as he usually is and does.

MEDICAL PREPAREDNESS.

Dr. Rudolph Matas, of this city, member of the National Committee of American Physicians, read by invitation an address at the organization of the Red Cross Chapter of Louisiana, July 7, 1916, on "What the National Committee of American Physicians is doing for Medical Preparedness and What it Expects to do in Co-operation with the American Red Cross."

We regret that space will not permit the publication of this most interesting address in full, but we hope that the liberal extracts which follow will serve to give valuable information to the profession and to stimulate their interest in preparedness as a civic and patriotic duty.

"As the origin and purposes of the National Committee of American Physicians for Medical Preparedness are not generally known, being the result of the very recent organization of the medical profession at the meeting of the Congress of Physicians and Surgeons held in Washington last April, and maturing only in the last few weeks, I feel justified in submitting the main facts which are pertinent to this occasion.

With Dr. Wm. J. Mayo, of Rochester, Minn., president, and Dr. Frank F. Simpson, of Pittsburgh, Pa., secretary, the National Committee's organization consists of six ex-officio members (William C. Gorgas, Surgeon General, U. S. A.; William C. Braisted, Surgeon General, U. S. N.; Rupert Blue, Surgeon General, Public Health Service and also president American Medical Association; Jefferson R. Kean, Colonel Medical Corps, U. S. A., Director General Military

Relief American Red Cross; Samuel J. Mixter, president American Surgical Association); thirty representative members, appointed by the joint action of the presidents of the various national medical organizations; state committees of nine members for each state, three members for the territories (appointed by the National Committee), and a number of aides for local work, to be appointed by the several state committees.

"Plans have been carefully formulated for the purpose of organizing our vast civilian medical resources in accord with the comprehensive plans for national defense which are now being carried out.

"The first duties which the Committee of American Physicians for Medical Preparedness undertake are: A. To aid the Medical Department of the United States Army and Navy by making a comprehensive inventory of the special qualifications of individual civilian physicians. B. To cooperate with the National Committee of the American Red Cross in bringing that organization up to the highest standards of medical ideals and to aid in the organization of Red Cross units. C. The activities of the near future will include a very practical inventory of all civilian medical resources. D. Research work along many lines relating to the subject of efficient medical preparedness, standardization of first aid methods, etc.

"The two chief objects of the National Committee's work are summed up under the following headings:

A. Inventory of Medical Men: It is the desire of the Surgeon General of the Army to greatly increase the number of medical men in the Reserve Corps. To further that end, the committee will endeavor to interest the medical profession in that subject, and in the desirability of applying for commissions in the Officers' Reserve Corps, Medical Department.

B. To Aid the American Red Cross: By a mutual understanding between the Committee of American Physicians for Medical Preparedness and the committee of the American Red Cross, and by an interlocking of national, state and local committees, the former organization has determined to cooperate with the Red Cross in raising its work to the highest point of efficiency and in organizing Red Cross units in

accord with recent advances and high ideals of medicine. By a presidential proclamation, the Red Cross was made an agency for the organization of a reserve for the medical services of the army and navy, and the units organized by it pass, in time of war, into the medical service of the military forces.

"From what has just been read, we have learned what the medical profession of the country proposes to do in aid of the established medical forces of the regular army, by canvassing the entire medical profession of the United States and providing a list of efficient medical men in the proportion of 200 reserve surgeons and physicians to one million of the population. When these are duly chosen and examined for their fitness for military service, and approved by the government, they are to be duly enrolled for a term of three years in the Army Medical Reserve Corps, thus constituting a total aggregate estimated to be about 25,000 able, efficient medical men, pledged to respond to the call of the Surgeon General when needed.

"The canvassing of the profession is now being carried out in every state. A state committee for Louisiana has already been organized with nine members: Dr. S. M. D. Clark, Chairman; Drs. W. H. Seeman, President Louisiana State Medical Society, during incumbency; R. L. DeBuys, Secretary Louisiana State Medical Society, during incumbency; Isadore Dyer; Hermann B. Gessner; Urban Maes; C. Jeff Miller; Frederick W. Parham; J. C. Willis; Rudolph Matas, member of National Committee. It will be ready to report early in August.

"Thus far, the work of the National Committee is well under way, insofar as the inventory of the Medical Reserve Corps is concerned. The other great problem is one which cannot be solved without the active and general co-operation of the philanthropic men and women of the community, who are already enrolled in the Red Cross movement and who are anxious to do their share of preparedness. This most important function is that of preparing a number of Red Cross Base Hospital units which should be ready for immediate service whenever called upon by the needs of the country.

"From a recent letter received from Col. J. R. Kean of the U. S. army, and Director General of Military Relief of the American Red Cross, we learn that fully twenty-two such units have already been organized under the direction of the leading universities and hospitals of the northern, eastern and western states. Thus far, no units have been reported from the universities or hospitals of the great cities south of Baltimore, where the Johns Hopkins University holds the furthest post of honor in the South. It therefore behooves us to move promptly, if we are to prove that the South is not lacking in patriotism and enterprise.

"The medical faculty and teachers of the Tulane University and of other medical centers of the South are eager to contribute an efficient personnel to meet the requirements of a base hospital unit; but the equipment of such a unit for active service is no small matter, as this must meet the most advanced requisites of modern medical service and surgical art, when called upon to face the complex conditions of present day warfare.

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"The organization of the Red Cross Base Hospitals for the army is made to correspond as nearly as possible with that of the Army General Hospitals of 500 beds, in order to facilitate their transfer to the military service when called into active service. All of the medical men enrolled in them are given commissions in the Army Medical Reserve Corps, and the nurses are enrolled members of the Red Cross Nursing Service, which is the reserve for the Army Nurse Corps and Navy Nurse Corps.

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"It is surprising to find the readiness and enthusiasm with which the highest medical talent in the country has placed itself at the disposition of the Red Cross for the formation of these units. If a like degree of patriotism and public spirit can be found among the prominent men in other professions and employments, the equipment of these hospitals will be an easy matter.

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"The question that is now squarely placed before this body for early consideration is, Will this Chapter, through its per-

sonal efforts and influence in this community, be willing to permanently equip a Red Cross Base Hospital Unit to meet the requirements of a 500-bed hospital, if the medical or professional personnel is furnished by the Tulane University and other medical institutions in sympathy with the movement, in co-operation with the Red Cross Chapter and nurses of Louisiana?

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"I can safely state that out of the faculty and the alumni of Tulane University, there will be an abundance of efficient material for the personnel of such a unit and that this phase of the problem is that which presents the least difficulty, in the way of solution.

"In making such an organization of the Medical Reserve Corps in co-operation with the Red Cross Nursing Corps, we must be guided by two fundamental principles. First: Each man and nurse should be assigned to the service for which he or she is best qualified. Second: Standard materials should be stored so that we may not be caught by a shortage at a time when industries are paralyzed.

"In general, it would seem proper that the civil surgeon of the Reserve Corps should undertake no administrative duty, —such as care of transportation, records, supplies, commissary, etc. The civil surgeon should be primarily, and, if possible, exclusively, engaged in the care of patients. These units will be more efficient if they are made up of men who have had similar training and who know each other, and if they have associated with them a nursing staff familiar with their methods.

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"The following personnel is suggested as adequate for each base hospital of 500 beds:

> One director or chief surgeon in charge; five assistant surgeons, each in charge of a service of 100 beds; three assistant surgeons; one orthopedic surgeon; one genito-urinary surgeon; three anesthetists; one pathologist and assistant; one internist; one neurologist; one oculist; one ear, nose and throat specialist; two dentists; two roentgenologists; two mechanicians; one secretary and record clerk; two stenographers; fifty trained nurses. Total, 78.

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"The surgical instruments and apparatus for each unit, including the ambulances, operating tables, X-ray outfits, etc., would be owned by the government and stored in a room set aside for this purpose. There should be a meeting of the unit annually or oftener. Each unit would be assigned to service in a certain contingent of the army, and would go on automatically with that contingent. The preparations and construction of the base hospitals would be in charge of the regular army. Army officers would be on duty in each hospital and would have entire charge of its administration.

"This plan which was first submitted by Dr. G. W. Crile of Cleveland, in October, 1915, has been adopted by the Surgeon General in its general outline, but the precise details of the personnel and of the material that must be supplied by the government have not yet reached us, and we are now waiting for further particulars in order that the full expense of the equipment that is to be provided by each Red Cross Chapter shall be known."

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

A PRACTICAL METHOD OF MINIMIZING THE PAIN OF LABOR.*

By H. W. KOSTMAYER, A. B., M. D., New Orleans.

It is perfectly natural for most of us to borrow the expressions of our teachers when we first start the practice of some branch of medicine. I was taught that pain with labor was necessary and natural, and I recall, with a mixture of amusement and embarrassment, my sitting by the bedside of maternity cases and assuring them that nature in her infinite wisdom saw fit to make women suffer during childbirth that they might love the children the more, and so on to the end of my resources. But that time is past and would have been long since, if men bore children. However, the women themselves have forced on us the problem of relieving, or, at least, of minimizing their pain, and the problem must be solved if the profession is to do its duty toward womankind. Furthermore, I am convinced that small families, in many instances, are directly attributable to the pain of childbirth.

There is a great difference in the degree of success attained by various obstetricians in the use of the classical "Twilight Sleep" procedure. Men of equally good repute report such different results that the conclusion is reached that the method is not adapted to the everyday needs and uses of the average man doing obstetrics. This is strongly emphasized by the often repeated and generally accepted statement that "Twilight Sleep," to be successfully carried out, requires a well-equipped institution, devoted to the purpose, or requires the undivided attention of the attendant in a given case.

There is no such institution in New Orleans, and it is practically impossible to remain continuously with each maternity case throughout the entire labor, so I have been forced to look about

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for some other means than typical "Twilight Sleep" to minimize the pain of labor.

It has always been comparatively easy to lessen the pain of the last part of the second stage; that is, delivery of the presenting part over the perineum. This is readily accomplished with chloroform or ether, but both these drugs are too toxic and retard labor too much to be used throughout the second stage. Morphin, however, in small doses, is a splendid drug in the early part of the second stage, as it greatly diminishes the pain and retards labor but little, this slight retardation being nicely overcome by a judicious use of pituitrin. I say judicious, for it must be remembered that some patients are peculiarly susceptible to the action of this drug, excessively violent uterine contractions sometimes following the use of a maximum dose with possible disastrous results, such as premature separation of the placenta. It is a safe and satisfactory practice to give a small initial dose of pituitrin—say 4 or 5 minims—increasing the second dose, giving 1 c. c. at the third dose, if necessary.

Control of the pain of the first stage is the most difficult problem. Morphin will frequently abruptly stop dilation, and always markedly retards it, while ether and chloroform are obviously contra-indicated. During my intern days at Charity Hospital, chloral was used a great deal in cases of unyielding cervices, not with the idea of relieving pain, but for its so-called specific action on the cervix. I do not believe it the wonderful specific for relaxing cervices it was then taught to be, but I do believe it definitely lessens the pain of this stage of labor. This is especially so in nervous, excitable women, who reach the second stage already in a state bordering on exhaustion, unless the early pain is minimized. Besides, I am convinced that chloral very often does materially shorten the stage of dilation.

To summarize, the method is applied as follows: As soon as the pain of the first stage becomes definitely annoying, chloral is given in 10-grain dose and repeated in forty-five to sixty minutes, as indicated, as much as three doses being given, if necessary. When the character of the pain changes to the "bearing-down" of the second stage, morphin grain 1-8 is given by needle, as soon as this pain is severe enough to warrant it. It is rarely necessary to repeat the morphin, though this may safely be done after an hour or two. If labor is retarded in the least,

or if in the judgment of the physician labor might safely be hastened, pituitrin is given by needle in the graduated doses above stated. As the presenting part begins to dilate the vaginal orifice, ether is given by the open drop method at the beginning of each pain, and continued until the pain subsides.

This method is detailed with no idea of originality, but because it is a simple, safe, and practical means of minimizing the pains of childbirth. It has been a big asset to me in my obstetrical work, and has added interest and pleasure to the management of maternity cases, upon which I formerly looked with a feeling closely akin to dread.

REVIEW OF THE TETANUS EXPERIENCE IN CHARITY HOSPITAL FOR TEN YEARS.*

By HERMANN B. GESSNER, M. D., F. A. C. S.,
and
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The purpose of this article is simply to give the actual experience with tetanus in the Charity Hospital for the period, April, 1906, to April, 1916. It will not deal with the subject from any other viewpoint than that of the statistics bearing on the prevention and cure of this disease.

It is interesting to compare the mortality from tetanus to-day with that of the earlier decades of which we have records:

	Discharged.	Died.	Total.	Mortality per cent.
1840- '9 (Incomplete)	5	11	16	68.7
1850- '9	17	70	87	80.4
1860- '9	14	43	57	75.4
1870- '9	17	58	75	77.3
1880- '9	13	68	81	83.9
1890- '9	33	117	150	78
1900- '9	54	119	173	68.7
1910-'14 (5 years)	52	139	191	72.7
1915- (1 year)	22	39	61	63.9

From these figures it will be seen that, while the mortality has diminished, the decrease has been very moderate, not at all in proportion with the gains made by therapeutics in other direc-

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tions, e. g., in diphtheria.

Comparison of the period 1840-'89 with 1890-1915 (the pre-serum epoch with that employing serum) shows a reduction in morality from 79% to 72%. Study of the comparative mortality of different therapeutic measures, however, leads us to the conclusion that this reduction is to be attributed to some cause other than serum, probably to improved nursing, the introduction of which into Charity Hospital was coincident with the coming of serum treatment. It should be mentioned here that in giving the mortality by years and decades, all cases discharged have been contrasted with all cases that died, without considering that some of those discharged afterward died, and without making allowances for the fact that some of those discharged may not have been cases of tetanus, their stay having been too short to permit of accurate diagnosis. Both these sources of error tend to make the mortality less than it would be if they were eliminated.

Following is a presentation of the cases that developed tetanus although they had received serum before the disease was recognized:—

	History Number.	Serum.	
	58.....	5 days after injury, just before onset.	*Cured.*
	101.....	44 days before onset (had suppuration all this time in arm-stump)	*Died.*
Adults	126.....	5 days after injury, 8 days before onset.	*Died.*
	128.....	Died under anesthetic immediately after receiving an intravenous injection of serum.	
	135.....	72 days before onset (had necrosis of metatarsals with suppuration).	*Cured.*
	158.....	8 days after injury, 5 before onset.	*Cured.*
	165.....		*Improved.*
	11.....		*Died.*
Children	54.....	Serum: 5 days after injury, 2 days before onset.	*Cured.*
	125.....	Serum: 7 weeks before onset.	*Died.*
	161.....		*Cured.*

Of these 11 cases, 4 died, giving a mortality of 3 .3% only. In 4 cases the preventive dose was given late, from 5 to 8 days after injury was inflicted.

In 2 cases the preventive dose was given at the time of injury, but in one of them suppuration in an arm-stump continued 44 days before onset; in another there was metatarsal necrosis with suppuration for 72 days before onset. Experience has shown that in cases presenting likelihood of tetanus infection, the preventive dose should be repeated after 10 days of suppuration continues. This precaution is very generally neglected by surgeons in Charity Hospital, the writers not excepted.

In case 128 (adult) death immediately after the intravenous administration of serum, may have been due to anaphylaxis. The period of incubation was 14 days.

In 10 years, among 303 authentic cases of tetanus, there were 11 in which a preventive dose of serum had been given. Of these we may eliminate 4 in which the dose was given late, and 2 in which it should have been repeated because of the continued danger of tetanus, suppuration keeping up the conditions of a possible latent infection of this kind. This leaves 5 unexplained cases of tetanus following preventive doses in the course of 10 years, or one case to two years.

We call attention to the fact that though serum did not prevent tetanus in these cases, it appears to have lessened the intensity of the disease as the mortality for the series was 3 .3%.

Assuming that all the cases returned to Charity Hospital for treatment and taking into consideration the large number of punctured, lacerated and gunshot wounds treated annually in the accident service, it seems clear that the preventive use of antitetanic serum has established fully its claim to recognition. This experience and the steadily increasing number of cases of tetanus coming in for treatment, leads us to urge that a campaign of education be initiated among the less well-informed classes of our population in order that the mortality from this preventable disease may be reduced to the vanishing point.

Too often the injured of these classes content themselves with the use of bacon fat, turpentine and cockroach poultices for punctured wounds, when a preventive dose of serum would insure safety and prevent the pain, disability and loss of life consequent on the neglect of this precaution.

We come next to a study of the comparative mortality of cases of tetanus under different methods of treatment:

Carbolic Acid—No cases.

Serum given hypodermatically (78 cases): Adults—26 deaths, 7 recoveries; mortality 78.7%. Children—28 deaths, 7 recoveries; mortality, 62.2%.

Serum given intravenously, intraneurally, intraspinally, intramuscularly, or by combinations of these methods (40 cases): Adults—21 deaths, 6 recoveries; mortality, 77.7%. Children—8 deaths, 5 recoveries; mortality, 61.5%.

Sedatives only, excluding chloretone (86 cases): Adults—32 deaths, 9 recoveries; mortality, 78.0%. Children—33 deaths, 12 recoveries; mortality, 73.3%.

Sedatives only, including chloretone (79) cases): Adults—31 deaths, 14 recoveries; mortality, 68.8%. Children—21 deaths, 13 recoveries; mortality, 61.7%.

Magnesium sulphate, given hypodermatically, except 2, intraspinally (20 cases): Adults, 8 deaths, 3 recoveries; mortality, 72.7%. Children—6 deaths, 3 recoveries; mortality, 66.6%.

Total—214 deaths + 89 recoveries=303 authentic cases.

Eliminated—Tetanus neonatorum, 20; incomplete data, 28. Total histories studied, 351.

The most positive statement that can be made from these figures is that the mortality for children under every method of treatment is distinctly lower than that of adults.

For the latter the mortality was lowest for treatment by sedatives only, including chloretone, after which followed in order magnesium sulphate, serum given by other routes than the subcutaneous, sedatives only, excluding chloretone, and serum given hypodermatically; the range was from 68.8% to 78.7%.

Cases in which chloretone was used were grouped separately in order to determine the value of this drug, for which strong claims are sometimes made. According to the figures here stated, the use of chloretone was followed by better results than that of other sedatives, in fact by the best results obtained among adults under any one method of treatment. We draw no final conclusion, believing that further study of better recorded cases is necessary for this purpose.

tetanus has not progressed as it should, and that a determined effort must be made to improve our results in this disease. With this end in view we must aim to get cases earlier. Many cases die, though treated promptly when trismus develops; a large proportion of these give a history of pain and stiffness in the neck, back and extremities for 2 or 3 days or even longer before treatment was begun. To obviate this the laity must be warned to apply for treatment when pain and stiffness follow the kind of injury likely to be followed by tetanus. The use of serum has been disappointing, yet it would be unwise to discard it hastily. The writers have seen individual cases improve so promptly after its use in the larger doses, especially when given by the routes other than the subcutaneous, that they think this plan of treatment deserving of more extended trial. Indeed it may be said that the treatment of tetanus is still a wide open question.

Our final conclusions are these:

1. The preventive use of serum is to be insisted on as a measure of proven value.
2. Cases of tetanus should be recorded with greater accuracy, noting especially whether a preventive dose was given, the period of incubation, the duration of symptoms and the fullest details of treatment with special regard to quantity of various medicines and the method of employment.
3. Pending the acquisition of more experience with the newer methods of treatment care should be taken to afford tetanus sufferers the most careful nursing and the most complete isolation from disturbing factors.

This report would not be complete without acknowledgment of thanks due Dr. G. Farrar Patton, Registrar of the Hospital, without whose efficient management of the records our review could not have been made.

CERTAIN PHASES OF SYPHILIS IN THE NEGRO FEMALE FROM THE STANDPOINT OF MEDICAL DIAGNOSIS.*

By S. CHAILLE JAMISON, M. D., Instructor in Medicine, Tulane College of Medicine, New Orleans.

The observations embodied in this paper are based on the cases of syphilis diagnosed in the examination of 1000 consecutive medical cases seen between June 1, 1915, and January 1, 1916, in my clinics at the Charity Hospital.

There were 166 cases diagnosed as syphilis, or 16.6%. I was surprised at this small number, but find, that if a very strict analysis were made of certain of the cases, the diagnosis might be open to some question, and, therefore, if the figures given err, it is on the side of the fewer cases. We frequently hear the loose statement among doctors that there is 60% or more of syphilis among the negro population. From the standpoint of internal medicine, this is entirely unfounded so far as the negro female is concerned. On the other hand, syphilis, in point of number, heads the list of diseases in these 1000 cases, there being three times as many cases of syphilis as of tuberculosis, which is next in point of numbers, and over twenty times as much syphilis as malaria.

The diagnosis of syphilis in the negro female is not easy. Anyone who has dealt with the negro knows that the history given is so unreliable as to be practically worthless. The female of the race will seldom give a history of the chancre; usually, I believe, because she does not know that she has had such a lesion. Although 25 per cent. of these cases have had vaginal examination, it has been very rarely that the chancre, or its scar has been demonstrated.

I have been surprised by the rarity of skin lesions in these cases. Such lesions are common enough in the mulatto, but it is my impression that the blacks are rather exempt from the skin lesions, and that it is not altogether a question of the color merely disguising the lesion. On the other hand, mucous patches are common, and of great value in diagnosis, especially as the *Treponema pallidum* can so frequently and easily be demonstrated in such lesions.

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Gummas, especially of the periosteum, have been fairly common and need no comment.

The chronic joint lesions have especially interested me, and I have learnt, when the skiagraph of these chronic joints is negative, that they yield, nearly always, to specific treatment. Certainly the incidence of syphilitic arthritis in "chronic rheumatism" is very high among the negro females.

Pain, worst at night, is easily the most common symptom that these cases have presented. I believe that the most characteristic type is that in which the patient merely complains of vague "misery" all over the body. It is more common than the nocturnal headache or "joint pains." In the face of a negative physical examination, such cases are too frequently called "neurasthenia," when the serum test will frequently clear them up.

The history of repeated miscarriages, with negative pelvic examination, is exceedingly common and significant, although it must be borne in mind that abortion is an almost universal practice in this race. I have found that these women are usually very frank on this question and that abortion is looked upon more as a fashion than a crime.

The serum reactions have been performed 81 times on the 166 cases diagnosed as syphilis; it was positive 65 times and negative 16 times. This is about the usually accepted eighty per cent. of positive Wassermanns in cases of syphilis. The routine performance of the test in 100 cases did not alter our percentage. I believe that the serum reactions should be performed on every medical case in which there is a reasonable suspicion of syphilis; that no diagnosis of medical syphilis is complete without such tests; that the man who attempts to diagnose syphilis by serum tests alone is certain to fall into enormous error. A positive serum reaction is of great value; a negative reaction may be of no significance.

Of the sequelæ of syphilis: In this 1000 cases we have been unable to diagnose a single case of aneurysm, and believe that it is rare in the negro female, though its prevalence in the negro male is so great. Again, in contra-distinction to the male, there have been only two cases of aortic regurgitation; there have been two cases of tabes and one of paresis.

REPORT OF A CASE OF POLYMAZIA, WITH COMMENTS.*

By J. A. STORCK, M. Ph., M. D., New Orleans.

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The physician's observation, while broad and varied, is, for the most part, extended over cases which are embraced in routine practice; but occasionally added interest attaches to some phenomenon presenting itself as quite out of the ordinary. Such has recently been my experience in regard to the case which I consider sufficiently interesting to report to you this evening.

The case in point is the second of its kind which I have seen since I began practice in 1893, the first being that of a mulatress who presented a rudimentary nipple and gland in the left axilla. She came under my observation about fifteen years ago, during my service in the negro female clinic at the Charity Hospital. She stated that a few drops of a whitish substance (milk) was secreted from this gland during the entire period of lactation while nursing two children.

The second case came under my notice recently in my service in the Charity Hospital Out Clinic. It was seen by Dr. Caroline Mims, also by Drs. C. J. Miller, H. W. Kostmayer, and various members of the New Orleans Polyclinic class, attendant on my service during the patient's several visits.

I take it that a short historical sketch of polymazia will not be amiss. A number of interesting facts bearing on this subject are to be found in the "Anomalies and Curiosities of Medicine," by Gould and Pyle.

Polymazia must have been known in very ancient times, since it enters into the mythological conception of Diana. There are images of this goddess in which she is represented with numerous breasts, indicating her ability to provide sustenance for the growing child.

The earliest reference given is that of Julia, mother of Alexander Severus, one of the early Roman emperors. She lived in the third century A. D., and was surnamed Mamma because she had supernumerary breasts.

Anne Boleyn, the unfortunate wife of Henry VIII (rather,

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one of his numerous unfortunate wives), was reputed to have had six toes, six fingers and three breasts. Imagine this noted woman, leading in the court revels and figuring as a great beauty, when she was really abnormal to a marked degree.

Lynceus states that in his time there existed a Roman woman with four mammæ, very beautiful in contour, arranged regularly in two lines one above the other, and all giving milk in abundance.

In the realm of art, Rubens saw fit, from interest or curiosity, to depict a woman with four breasts, and this painting may be seen in the Louvre in Paris.

So much for celebrated cases of polymazia. Why does it exist is a subject of interesting speculation. Leichtenstern, who collected seventy cases of polymazia in females and twenty-two in males, thinks that accessory breasts or nipples are due to atavism, and that our lower organized remote ancestors had many breasts. However, by constantly bearing but one child, females gradually become bimastic instead of polymastic.

Some of the older philosophers contended that the presence of two breasts in woman denoted that she was originally intended to bear two children at once.

In regard to frequency according to Hirst, Bruce and other observers, supernumerary breasts and nipples are more common than is generally supposed. While this may be true in the observations made by these men, from my own personal experience, also that of the confreres to whom I have spoken, the condition seems to be rare in this community.

The observers above mentioned agree that the anomaly is about twice as frequent in men as in women. Instances are sometimes met in boys in whom a small amount of milk is secreted; and one case at least is recorded of a man who suckled a child. The condition of polymazia has been found in all races and is often hereditary. Owen noted it in the ourang, and various observers have found it in other animals.

As to position, the condition of polymasty has been found in various parts of the body. The most frequent place is on the pectoral surface below the true mammæ and somewhat nearer the middle line; but accessory glands have been observed over the prominence of the deltoid, on the abdominal surface below the costal cartilage; above the umbilicus; in the axilla; in the

groin; on the dorsal surface; on the labium majus, and on the outer aspect of the left thigh. Alfield explains the presence of mammæ on odd parts of the body by the theory that portions of the embryonal material entering into the composition of the mammary gland are carried to and implanted upon any portion of the exterior of the body by means of the amnion.

The case which I wish to report is that of Mrs. E. B., a native of Louisiana, and twenty-one years old. She has two children, and had one miscarriage at the age of fifteen. Her greatest weight was 145 pounds, her weight in February, 1916, was 112 pounds. She gave the following history. Her mother told her that at the age of two years a mole situated about the middle of the right eye-brow began a periodic bleeding at twenty-eight day intervals. This continued until regular normal menstruation began at the age of 11 years.

On inspection, two fairly well-defined mammae and nipples were observed above the regular mammae, near the axillary region. She stated that, during three pregnancies, milk in abundance flowed from the nipples, causing such discomfort as to necessitate bandaging by the attendant physician. No other member of her family, so far as she knows, has had similar anomalies.

In the present instance she applied for treatment for periodical vomiting, and also complained of being nervous. The treatment instituted has no bearing on this report. The woman has discontinued her visits to my clinic.

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THE UNIQUE CLINICAL HISTORY OF THE COLLEGE OF MEDICINE OF TULANE UNIVERSITY OF LOUISIANA.*

By JOSEPH HOLT, M. D., New Orleans.

During the recent most instructive and enjoyable session of the Louisiana State Medical Society, I was inspired by reminiscent suggestion to prepare a synoptical statement of the most interesting and important clinical study that has come within the range of my professional observation. A case having a logical sequence of events, profoundly affecting every one of you, from the Dean of the Faculty to the latest matriculate, extending to its graduates throughout the State and elsewhere; and yet, never to my knowledge, has this case been presented in its anomalous symptomatology, from its etiological beginning, through its incubative and violently eruptive stages, reaching a climax in an alarming crisis, resolving in happy convalescence with acquired immunity as a perpetual guarantee for the future. The attack terrified the patient with forebodings of imminent disaster.

By right of seniority, as active Dean of the medical profession of this city and State, it becomes my duty to make known in a coherent, brief recital an outline of occurrence, representing a body of facts, voluminous in detail, not essential to the main understanding of this unusual and momentous case, an accurate account of which has never been in print. Favoring circumstances threw me into an intimate relation, as an early matriculate in the "New School," with many ties of close personal friendship in the "Old School," bringing me into an inside

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knowledge of rare clinical opportunity. Here is briefly the history condensed in allegory:—

Born of the State Legislature in 1834. Female. White. Christened, Medical College of Louisiana. Again baptized, Medical Department of the University of Louisiana, 1847. Successfully vaccinated, 1856. Married into the family of Tulane University, 1884, assuming the title of College of Medicine of Tulane University of Louisiana in 1913.

In childhood and early life she was raised in the *dolce far niente* and luxurious habits of the Old South, with rich plantations all around her, and mistress of this whole lower region of the Mississippi, including Texas, Arkansas, Tennessee, Louisiana, Mississippi, Alabama, with an attractive influence in Georgia, Florida and the Carolinas.

Life was a realized dream of assured contentment, with a prospective tenure, unassailable and unbounded: "And she said to her soul, soul thou hast much goods laid up for many years, take thine ease, eat, drink and be merry"—'This vast territory belongs to thee without possible competition.' And true! for the nearest medical center of instruction, to be reached in modern equivalents of speed, projected on the schedule of a cannon ball express as the unit of time, gives approximately 4000 miles to St. Louis, Louisville or Cincinnati; to Philadelphia, 8000 miles; to New York or Harvard, 9000, and 9800 respectively—a long way off. Chicago, unimportant and not considered. Likewise, San Francisco, whose time distance over plains or across the Isthmus, via Aspinwall, was 54,000 miles.

Feeling absolutely secure in the protecting isolation of a monopoly, that satisfied ambition in the contemplation of her own aristocratic pre-eminence, her labors were recreative, in the restful assurance of a pre-emptor's claim in perpetuity.

She made no reckoning of a raid, and a sudden declaration of "Squatter's Sovereignty," within this sacrosanct precinct of her domain; presently to be enforced by an equipped, a bold and irrepressible band of aspiring, young chivalry; nurtured and trained in her own household. An irreverent crew, allured abroad by the fascinations of an imperious ambition to achieve; in due time returning, with the prestige of Paris, London, Edinburgh and other of the world's greatest schools of medicine.

The State Legislature, a worldly body, was promptly assailed

by the young adventurers, on claims of equal rights and privileges: counter-assailed by a tremendous opposition, urging and fighting desperately for assumed vested rights; demanding protection from ruinous and outrageous innovators.

All swore like the army in Flanders, or Lee's Army in Virginia, the attainable limit.

The social status was fairly well preserved in a cordial interchange of deadly looks, an illy disguised forbearance, compelled by the repressive usages of society; while the town reeked with mutual expressions of hyphenated regard, of high electrical potential, mostly profane.

In a few collateral involvements, the derringer and ready tranter were heard in major tones, with an occasional knife display of the spirit of the times among gentlemen.

Did I not tell you of these things as a living witness, there would soon be "A Lost Chord" in the harmonies of our profession. It was an exhilarating period of psychic exaltation; and the younger claims were conceded.

Straightway and with masterful audacity, an elaborate and commodious college building, with all the then modern appointments, was erected opposite the front gateway of the Charity Hospital; equal privileges accorded in that institution; able teachers from abroad added to both faculties; and the sharp rivalry of merit instituted, pressing in achievement, to fortune and to fame.

So much for a desperate attack, induced by hypothetic autogenesis of germs, as virulent as *S. choleræ Asiaticae,* or *B. pestis;* moving on through a dangerous crisis, into a convalescence of acquired immunity maintained by defensive antibodies; not long since severely tested as to protective resistance.

The eventuation of this pestilent attack, immediate and remote, was startling at the time and is operative in enlarging scope to-day. Matriculation in the Medical Department of the University of Louisiana, had increased from 11 to 223 in twenty-two years, 1856, when the competition began. Five years later, under the struggle of rivalry, it had increased to 404, when the Civil War closed the schools. It was drawing students from all the Southern States, Mexico, Central and South America and the West Indies.

Its faculty, pressed by the necessity of enforced action,

aroused with prodigious energy to its vastly extending responsibilities; while the New Orleans School of Medicine, organized in 1856, sparing neither labor nor expense in improving methods of instruction, through individual attention and thorough equipment for demonstration, presently touched the 250 mark of matriculates.

New Orleans, under the creative stimulus of competition, soon found herself a large and growing center of medical education, of diagnostic consultation with treatment, and of operative relief.

Then came four years of Civil War; after which both institutions resumed their duties, amicably, with equal privileges and growing attendance.

The American Medical Directory, tells us, with unfeeling brevity, almost brutal: "New Orleans School of Medicine. Organized, 1856—Extinct, 1870"—a healthy, flourishing institution, stricken with deadly vibrios of dissension, self-cultured in the hearts of the elder faculty, resigned:—she sank to sudden death, scarcely distinguishable from suicide.

For a period of eighteen years after the war, communication continued slow and distances relatively great; hence a lapse into slow ways from lack of competition; but with building of railroads and increasing facility of travel, distances rapidly diminished under the inauguration of the cannon-ball-express units of time and space. Other great centers came into close proximity in the field of competition with the now, Medical College of Tulane University of Louisiana; and the struggle of rivalry soon drove the matriculation above the 425 mark.

So much for quantity, and now for quality, through progressive methods, originally initiated by innoculation with the virus of innovation; followed by the severe illness, that totally changed her constitutional disposition, as here before mentioned.

This change and the steady movement to higher standards, was conspicuously manifest in the brightly intelligent and clear cut appearance of alert efficiency, characterizing the entire personnel of the State Medical Society, here in annual convention, a few days since.

No longer a vestige of the heavy-headed, unkempt, and often alcoholic illiterate, sadly evident in earlier days; but the pleas-

ant, deeply thoughtful face of the trained and cultured physician and gentleman.

In this clinical history, we are taught that to struggle is to have life, and to have it more abundantly. It suggests to us, that there is room in universal space for every star, of whatever magnitude; and that they are all balanced in their orbits by the push and pull of universal opposition: The order of creation.

We see that every great institution, like the sun, carries within itself, potentially the stored energy of its radiant power in perpetual renewal, self-existing.

And, finally, in the specific virulence of this case and altered trend of its life-history, we see wisdom shaping the destiny of the Medical College of Tulane University; so that to-day, from "the doleful, trist and plangorous" episode bristling with an eruption of rude innovation, that grievously afflicted her patrician sensibilities, she has survived in health and strength, to pluck the flower of efficient greatness.

A RESUME OF OUR PRESENT KNOWLEDGE OF THE FUNCTIONS OF MENSTRUATION WITH REFERENCE TO THE INTERNAL SECRETION.*

By MILTON A. SHLENKER, M. D.

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Prior to 1865 we were without any scientific knowledge regarding the function of menstruation. It was Pflueger who promulgated the theory that the flow was produced as the result of a reflex stimulation resulting from a growing Graafian follicle, thereby causing a pressure on the nerves of the ovary. This theory was contradicted by Leopold and others, who proved by the removal of the ovaries that both processes were not necessarily synchronous and that both the function of ovulation and menstruation would occur independently.

McIllroy states that the correlation between menstruation and ovulation is unknown and that the menstrual discharge is an evidence of metabolic processes by means of which some unknown chemical substances are eliminated.

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Kundrat and Engleman were the first to observe and record their observations of a systematic study of the anatomic changes that occurred in the menstruating uterus. They studied the endometrium of a uterus removed from a cadaver, and concluded that there was a fatty degeneration of the mucous membrane, with an exfoliation of the superficial epithelium. Leopold, Wyder, Minot and others agreed with Kundrat and Engleman that a certain amount of the endometrium was cast off, and stated further that there was also a fatty degeneration of the walls of the blood vessels which permitted an easy outlet to the flow of the blood contained therein.

Leopold recognized later that the observations of Kundrat and Engleman were at fault, and stated that the change observed by them was the result of an infective process or some wasting disease that might have been the original cause of death.

Leopold and Wyder claim that the fatty degeneration observed in the blood vessels was as a rule secondary to mal-nutrition.

Moericke in 1862 made a systematic study of the normal menstruating uterus. His material was obtained from the curettings of the endometrium, thus obviating the changes that were possibly coincident to disease.

He found in the 45 cases he studied that the surface epithelium was always intact. This was the first move in the right direction for the proper study of the normal endometrium, which was followed by Gebhart of Berlin, who went further into the subject and studied not only the scrapings, but also sections of the uterus, not involving the endometrium, during the menstrual period. To both Moericke and Gebhart credit is due for the correction of the erroneous idea, that the endometrium was entirely cast off during the menstrual period to be subsequently regenerated.

Gebhart speaks of premenstrual congestion with formation of a subepithelium hematoma, followed by a period where there is a bursting of the blood through the epithelium, and finally by post-menstrual absorption of the clot.

To Hitchman and Adler's efforts is due our present knowledge of the histological changes in the uterine mucosa during the various cycles of menstruation. In their review of the subject, they remark that "since Nylander discovered the cilia of the

uterine epithelium no further facts concerning the structure of the uterine mucosa had become known.

Hitchman and Adler for their investigation employed only the mucous membranes of uteri obtained by operation from the living subject of a definitely known menstrual term, concluding that this was the only possible way of determining the exact changes as they should occur. The parts were secured from the various sections of the uterus, concluding that the changes do not occur uniformly in the whole uterus at the same time.

Normal endometrium was secured from the subject during plastic operations. They also undertook parallel study of inflammatory conditions existing, at the same time, and found that as long as normal menstruation existed there was no interference with the regularity of the mucous membrane. This they found also to apply to myomata and ovarian tumors.

For a fuller comprehension of this important and interesting subject it is well to take into consideration a description of the normal uterus with its gross and microscopial anatomy in order that we may secure a clearer conception of the different physiologic cycles. The uterus early in life becomes differentiated into three parts, remains so throughout its existence, the various portions differing at different stages of life, namely, infancy, puberty, maturity, and menopause. Briefly stated we may say that it is divided into a body and a cervix, each portion possessing somewhat different histological elements. (The description herewith given refers to sexually mature uteri.)

The line division between the body and the cervix is arbitrarily given as the internal os, the narrowest portion of the uterine body. The body is again divided into the fundus uteri or that portion above the insertion of the Fallopian tubes, while the body of the uterus is that portion which lies between thhe insertion of the Fallopian tubes and the internal os. The cervix likewise is divided into two portions; first, that portion which lies between the pelvic cavity above the insertion of the vaginal vault, known as the supra-vaginal portion, and second that portion which lies within the vagina, the infra-vaginal cervix or portio-vaginalis.

Regarding its structure, it is a hollow organ composed of unstriped muscular fibers. These muscular fibers are distributed irregularly and may be roughly divided into (Syzomicz), a longi-

tudinal layer (stratum mucosa), and second, circular layers which are closely associated with blood vessels and known as stratum vasculare. The third and outer layer run both circularly and longitudinally, known as supra-vasculare, the middle or circular layer being decidedly the thickest. The arteries and veins divide principally in the stratum vasculare and send branches to the mucosa and capillary networks to the glands. Veins form plexuses in the deep mucosa and then pass to the stratum-vasculare where other plexuses are formed. Omission is intentionally made of the vascular, as well as the lympathic supply.

The endometrium in its normal state rests directly upon the muscular layer of the uterus. It has a soft velvety feeling and is of a reddish yellow color. Throughout its surface there are miscoscopic openings, varying in size from a pen to a pin point, representing the orifices of the ducts of the gland. It is one to two m.m. in thickness and is firmly adherent to the uterine muscle from which it can be sharply differentiated.

The epithelium which invests the surface of the mucous membrane is of the cubical type, being broad, short and ciliated with a nucleus which is oval and granular filling almost entirely the cell. The nucleus stains very dark. This form of epithelium is distributed over the entire uterus. In order to gain a greater secreting surface the epithelium dips down into the depths of the mucosa. These invaginations give rise to the so-called uterine glands, which are of the tubular type. They usually run parallel to one another and near the surface and have a constricted portion known as the neck of the gland.

The stroma is a delicate retiform framework containing cellular elements and convey the lymph and blood vessels. These stroma cells which are round, contain a well stained nucleus which almost fills the entire cell. While we pass deeper into the stroma layer, these cells become more or less oval, due to pressure and at the base of the membrane they become flat or spindle shaped having an oval nucleus. They can also be differentiated into three distinct layers containing the different forms of cells.

The cervical mucous membrane, which begins at the internal os, shows the following transitions into the epithelium. The cells are more or less columnar in type, are ciliated, having a round nucleus which is basal. The epithelium covering the vagi-

nal portion of the cervix is of a flat squamous type. The mucosa of the cervix is thicker than that of the body and is thrown into folds.

With this picture of a normally mature uterine mucous membrane we are now in a position to understand and note the change that occurs during the various cycles of menstruation which Hitchman and Adler have designated as follows:

Premenstrual period, duration.....6 to 7 days
Menstrual period, duration.....3 to 5 days
Post menstrual period, duration....5 to 7 days
Interval period. duration.....15 to 18 days

During the premenstrual period (which is of 6 to 7 days duration) the following transition has taken place. We observe now that the mucous membrane is decidedly hypertrophied, and about 1 c. m. in depth, showing a marked contrast with that of the postmenstrual period when the mucous membrane is about 1 m. m. thick. There is also to be observed a marked congestion of the M. M. with the vessels greatly dilated. There is a decided hyperemia of the entire membrane, with a marked transudation of serum from the blood vessels, and secretions from the uterine glands producing an edema of the tissues and a loosening of the cellular elements of the stroma. There are to be seen slight elevations of the superficial epithelium, due to a diapedesis from the vessels, producing the so-called hematoma of Gebhart, by whom this phenomenon was first described.

The glands are hypertrophied, tortuous or corkscrew in shape, and filled with a tenacious secretion. The stroma cells too, have taken on a new aspect—they are enlarged and those in the deeper which were noted to be spindle shaped have become well rounded due to the distention by increased amount of protoplasm contained therein. These cells now have the appearance of the decidual cells of pregnancy, and the glands also resemble those of pregnancy.

The menstruating mucous membrance presents all the phenomena observed in the premenstrual period with additional changes. We note the hematomas previously mentioned begin now to show extravasations of blood, which, of course, follows the line of least resistance and is discharged into the uterine

cavity. This material, together with exfoliated epithelium, serum and mucus is cast off, forming the products of the menstrual molimen. It is to be understood that these processes are not abrupt, but progressive, beginning usually in the fundus. The discharge is scant on the first day, gradually increasing until it reaches its height, and then it retrogrades until there is a cessation of the secretion, inducing now a picture of the postmenstrual mucous membrance. Keller in speaking of the causative factors producing the flow of blood during menstruation claims to have observed hyaline changes in the middle coats of the small arteries and the endothelium increases in size. The larger arteries near the muscle do not show these changes.

The post menstrual mucosa presents a striking contrast. The membrane which we saw in the previous period a centimenter in depth is now reduced in size to about 1 m. m. in thickness. The glands which we saw previously distended with secretion and tortuous in shape are now collapsed and narrow. The reticulum with its stroma cells have resumed their original shape and size and there is some pigmentation of the tissues remaining from the blood expelled.

The next change to be observed is that of the interval period which usually consumes from 15 to 18 days. Here we will observe a beginning activity which is evidenced by the following change of the mucous membrane; the stroma cells begin to enlarge, and the protoplasm increases: the glands begin to become active and secrete. There is a beginning hyperemia of the tissues with an increased blood supply to the parts.

These processes are gradual and progressive until it returns to the end of the next cycle.

Now that we have considered the histological changes concerned during the various cycles of menstruation, it should be interesting to indulge in the various theories concerning the production of this important physiologic phenomenon.

Undoubtedly the entire endocrinous system is concerned in the elaboration of various hormones, which act either alone or individually upon the various organs of generation, thereby influencing and controlling this important physiologic act.

It was Born who first arrived at the conclusion that the act of menstruation was governed by the corpus luteum of the ovary. He regarded the corpus luteum as a giand producing an internal

secretion which aided in the embedding and subsequent development of the ovum, and his results were verified by Frankel's experimental observation. Frankel concluded that the uterus having its own circulation was not dependent upon the corpus luteum for its nutrition, but without it, it cannot impart the life energy necessary to induce an hyperemia, which if the ovum is fertilized goes to a further phase of development, or if unfertilized results in menstruation.

Sometime later C. Merletti with the object in view of confirming Frankel's observation, remarks: "It must be admitted that in every ovary there is a nerve center which acts as a trophic and peristaltic regulator of the uterus, factors essential to the circulatory modifications which lead to a monthly loss of blood."

McIllroy, who has given this important subject a great deal of study, concludes that the ovary has a dual function; that of ovulation and that of the production of an internal secretion.

More recently F. Cohn published a most interesting article in which he states among other things that "our present knowledge of the subject of the internal secretion is bound up chiefly in the activities of the corpus luteum. The latter supplies a principle which presides over the growth of the genitals and precipitates menstruation. He further states that the stroma cells of the ovary also produce a hormone which protects the secondary sexual characteristics.

It has been shown by Calzolari that the ovaries are in a direct relation to the other so called organs of internal secretion as proven by castration producing an hypertrophy of the thymus. The role that thymus plays in its relation to secretion is that it is supposed to regulate and control the calcium metabolism.

The ovaries or their hormones not only have a prevailing influence on the function of menstruation, but they also directly influence pregnancy. It has been shown by Frankel that the destruction of the corpus luteum prevented pregnancy, and further that it would cause a disappearance of the ovum in the early months of gestation. The action is most profound in the early months of conception, say the first three months, while in the later months of pregnancy it is not in any way interrupted.

Weyermeerch investigated a cause for this action (referring to the destruction of the corpus luteum) and concluded that this condition was due to the fact that there was a constriction of the

uterine vessels and contraction of the uterine muscles, which prevented a complete circulation of the blood through that organ.

The exact relation of the hormone elaborated by the posterior lobe of the pituitary body in its relation to menstruation has not been fully concluded. We do know from clinical experience, that the injection of the pituitary extract into the body has a pronounced effect on the unstriped muscular fibers, with a particular predilection for those of the uterus, which undoubtedly have a decided influence in the expulsion of blood during menstruation. A further demonstration of its action is experienced during parturition, as you are well aware that the injection of even small doses of the pituitary extract produces tonic contractions of the uterine muscles, thereby facilitating the expulsion of the contents of the uterus.

Associated with the various diseases of the pituitary body, I wish to call your attention to those conditions of hypopituitarism which manifest themselves clinically by amenorrhea and obesity. The conditon known as adiposa dolorosa which occurs most frequently in women, is attributed by some authorities as a disease resulting from an hypo-oophorism which in turn produces a hypo-pituitarism; the resulting combination of these perverted internal secretions favor a suboxidation of fat and consequent accumulation of a large amount of fat.

It is interesting to note that in additon to the phenomena presented during the various histological changes in the organism some of the various metabolic evolutions occur during this period.

In one of his most recent studies Bell has shown that menstruation is largely dependent upon the calcium metabolism and that the peridocity of the function is in direct harmony with the same. He further states that the uterus execretes calcium directly and should the calcium content in the blood not rise in a corresponding manner the coagulability will be affected and menorrhagia will result. This investigation has a direct clinical applicaton in the treatment of menorrhagia and the use of calcium salts in this condition is decidedly beneficial.

The thyroid is frequently referred to as a sex organ, inferring that this gland is intimately associated with the function of menstruation through one of its products of elaboration which up to the present time has not been isolated. It is a matter of com-

mon observation that in many of the lower animals such as the deer just before the rutting period there is a perceptible enlargement of this gland, and it is not unusual to see in some women prior to menstruation and pregnancy, a decided swelling of the thyroid.

Dreissen has demonstrated the presence of glycogen in the glandular elements of the uterine mucosa and that it has a direct relation to pregnancy and menstruation. He has shown that during the menstrual period these glands which are rich in glycogen, discharge their contents and after the period is no glycogen to be found.

Hertoghe in speaking of the thyroid secretion in relation to the sexual apparatus says that it superintends the growth and general development of these organs and refers to the fact that when there is an insufficiency of the secretion the uterus remains small, infantile in character, and the function manifests itself late in life. This condition is contrasted wth the fact that later in life when the function is once established and a hypothyroidism occurs we have a condition of menorrhagia and metrorhagia due to the fact that there is an infiltration of the uterine mucosa and a deficient contractibility of the uterine muscularis associated with a hemophilic conditon of the blood. These conditions are amenable to treatment by the use of thyroid extract.

It is a well known clinical fact that just prior to menstruation, there is a marked hyperemia of the endometrium associated with a congestion of the pelvic viscera. This conditon was studied by Iscovesco, who succeeded in isolating a lipoid secreted by the ovaries which was found to be soluble in oil. This substance he tested by injecting into rabbits and later it was applied therapeutically on men. When injected into rabbits it caused an hyperemia of the uterus and adnexa with an extravasation of blood, especially when large doses were used. A similar lipoid was isolated from the testicle of man by the same author. He concluded that this specific lipoid of the corpus luteum increases post-partum involution, assists in lactation and lessens the nausea and vomiting of pregnancy.

In amenorrhea, Newman and Herman recorded an increasing lipoid content in the blood, indicating a hypo-function of the ovary which confirms the experimental conclusion of Latzo, along the same lines. Bearing on this subject it is well to note

the influence which this internal secretion has on the organism in general, influencing the relation of various other secretions as is evidenced by the fact that during pregnancy and lactation the function of the ovaries are in abeyance as regards menstruation.

O. Frankel has indicated that during this period of hyperemia the glandular element in the uterine mucous membrane is exceedingly active and secreted a substance which is alkaline in reaction containing a tryptic ferment which possesses the ability to digest albumin in an alkaline medium. He also observed that this ferment had the power to digest living tissue where there is an existing hyperemia, and refers to the possibility that it is this ferment acting in the congested mucous membrane, that through its tryptic powers digests the superficial capillaries resulting in an outflow of the blood representing the bloody content of the menstrual secretion.

Undoubtedly there is a distinct interrelation between the secretion of the mammary glands and the menstruation. Exactly how and what the relation is has not been definitely explained. Clinically we know that in many patients just prior to menstruation the breasts become painful and engorged.

In conclusion I wish to state that I have but briefly made reference to some of the various phenomena associated with menstruation and their relation to internal organs of secretion. The subject is one of such vast importance and one of which so much experimental work has been and is being done that it would require volumes to quote all on the subject. Suffice to say that no particular organs exert any specific influence on menstruation, but that the whole organism is affected and that the ovary plays but a part of the whole.

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PYELO-URETEROGRAPHY AS AN AID IN THE DIAGNOSIS OF OBSCURE SURGICAL CONDITIONS OF THE KIDNEY AND URETER.*

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Pyelography, or more correctly speaking, pyelo-ureterography, has received a great deal of attention by genito-urinary surgeons recently and many articles have appeared, chiefly in American literature, extolling its merits as a valuable adjunct in the diagnosis of obscure surgical conditions of the kidney and ureter.

The first successful attempt to render the upper urinary tract opaque to the x-rays was accomplished by Voelcker and von Lichtenberg in 1906. In attempting to outline the urinary bladder in the radiogram by filling that viscus with a solution of collargol they accidently discovered, in one of their plates, that the solution had entered the ureter and renal pelvis causing these structures to be outlined in the radiographic picture.

Encouraged by their discovery they injected solutions of collargol through the ureteral catheter into the pelvis of the kidney, and were successful in producing pyelograms which gave definite information as regards position, size and shape of the kidney pelvis and its corresponding ureter. Much credit is due Braasch for having perfected as well as popularized this procedure.

The technic of making pyelo-ureterograms, briefly stated, is as follows: Having previously prepared the patient for radiography by purgation, enemas and restricting food on the day the radiograms are to be made, cystoscopy is performed in the usual manner and one or both ureters catheterized (radiographic catheters usually being used). Then by means of a hand syringe or a small burette to which a piece of rubber tubing is attached with a small canula at the distal end for attachment to the ureteral catheter, the opaque fluid is either injected or allowed to flow by gravity into the renal pelvis and ureter. The gravity method, being the least dangerous of the two, is the one that should be employed. An elevation of the burette 1 foot (which corresponds to 10 mm. Hg. pressure) is usually sufficient to permit the fluid to flow into the kidney pelvis. 2 or 3 c. c. of the solution

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is all that is usually required for the purpose. Immediately following the instillation of the solution, an x-ray exposure is made. The solution is then allowed to drain off through the catheter and if this does not occur promptly, it should be aspirated by means of a syringe. The removal of the opaque substance from the kidney after pyelography I consider of greatest importance if one would avoid future trouble.

These pictures should always be taken with the patient *standing* in front of the x-ray apparatus, unless specially contraindicated. The reason for taking radiograms with the patient in the erect posture should be obvious, as the chief value of pyelo-ureterography lies in its ability to demonstrate the position of the kidney and whether or no the urine has a free outflow. The radiogram should be made with the patient in such a position as to best bring out pathological conditons. With the patient in the recumbent position kidneys with a marked ptosis may slip back into their normal positions and ureteral kinks may thereby be straightened out.

The agents that have been commonly employed in the past for making solutions that would be opaque to the x-rays are: collargol, cargentos, argyrol and silver iodide. When used in sufficient concentrations to produce good shadows, these silver salts are no longer in solution, but are in the form of suspensions and it should be therefore readily understood why there has been some objection to their use. Particles of the silver salt in suspension, when injected under pressure, might easily be deposited in the parenchyma of the kidney and produce foci for infection or necrosis. Then too, whereas the three first mentioned preparations are comparatively nonirritating, the same cannot be said of silver iodide. Recent experiences with silver iodide have convinced me that this preparation produces no little irritation to the kidney, even when instilled in as small amounts as 1 c. c. For these reasons I have abandoned the silver preparations for this class of work.

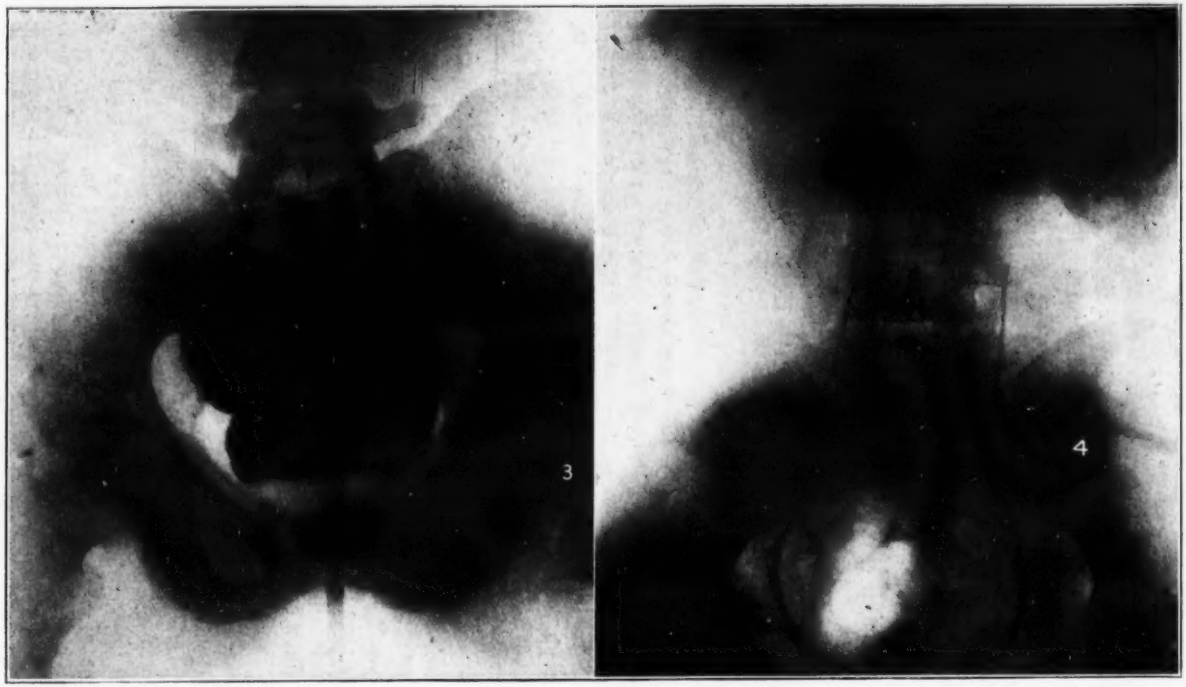
Burns, of the Brady Urological Institute, Baltimore, a year ago recommended neutral solutions of thorium nitrate for making pyelo-ureterograms and from my personal experience with this preparation I feel that we have at last found an agent for this work that is a perfect fluid, is nontoxic and nonirritating to the kidney. Some skill is required in the making of this

1. Case of intermittent hydronephrosis of the left kidney which is ptosed. Arrow points to kidney.
2. Pyelogram of a left misshapen renal pelvis, outline of calices practically lost. Notice kinks in ureter, the first an inch below the kidney pelvis, the second about 3 inches from the bladder.

thorium solution. We tried here repeatedly to make up some of the material, but could not succeed in obtaining a perfectly clear nor nonirritating solution. I am now using the thorium solution prepared by Hynson, Westcott & Co., Baltimore, with perfect satisfaction.

Now in what obscure cases may pyelo-ureterography aid in arriving at a diagnosis? In movable, wandering or floating kidney, usually spoken of as nephroptosis, with or without ureteral kink, when suspected in very obese individuals or in those in which the ordinary methods of abdominal palpation for the kidneys proves futile, pyelo-ureterography may be the only means by which a correct preoperative diagnosis can be made. By this procedure the presence of both kidneys can be definitely established. It is not impossible to have two ureters coming from a solitary kidney, as instances of this conditon appear in the literature, one such case having been reported in 1911 by Mayer and Nelken of this city. Such conditions could be demonstrated clinically only by pyelo-ureterography. Renal dilations, as in hydronephrosis, can be readily recognized by the increased size of the pelvic shadow as well as by distortion in the shape of the calyces. The greater the distention, the shallower the calyces appear. These pictures are often of considerable value in identifying doubtful tumors of the abdomen. Abnormal pelvic outline or other evidences of tumor involvement of the kidney can be demonstrated in the majority of cases. The position of a dystopic or pelvic kidney, the outline of a fused or horse-shoe kidney and duplications of the renal pelvis can be graphically demonstrated. I present among the illustrations a picture of a case of bilateral congenial renal dystopia or double pelvic kidneys. I was able to make the diagnosis in this exceedingly rare conditon only after pyelography had been performed.

Various conditions of ureteral dilation, due either to stricture, kink, calculus obstruction, extraneous pressure as from a pelvic tumor, or urinary retention as the result of extreme bladder retention, can be shown in ureterograms. Ureteral calculi can be differentiated from extraureteral shadows by the passage of radiographic ureteral catheters and the making of stereoscopic roentgenograms. Of the various anomalous ureteral findings, duplication of this structure either on one side or bilateral (where duplication of the ureters occurs the two ureters may en-



3. Congenital bilateral dystopic (pelvic) kidneys diagnosed by pyelography. Very rare, 18 cases only in the literature. Note cystoscope in bladder. Bar connecting kidney shadows is bladder partly filled with collargol solution.
4. Left sided ureteral obstruction (stricture) at level of forth lumbar vertebra. Right ureter normal.

ter the bladder at different points or they may fuse just above the bladder and enter the bladder wall as one ureter); two ureters draining a solitary kidney; and crossed ureters (in which the ureter from the right kidney enters the left side of the bladder and the ureter from the left kidney enters the right side of the bladder) are the most common conditions which can be demonstrated by shadowgraph catheters and X-ray.

My experience with this procedure leads me to conclude that pyelo-ureterography, when carefully and properly performed, in selected cases, is free from danger. It is true that a number of deaths have been reported in the literature as due to pyelography, but I believe that all these fatalities were due to either faulty technique or the indiscriminate selection of cases. Where one employs the gravity method of instillation not exceeding a pressure of 30 mm. of mercury (which corresponds to an elevation of the burette 3 feet above the patient's body) and where a perfect solution, such as thorium, is used, no one with a fair amount of cystoscopic experience should have any trouble.

I wish to express my sincere thanks to my chief, Dr. Joseph Hume, and to Dr. Samuel Logan and Dr. Maurice J. Gelpi for their kindness in permitting me to use some of the pyelograms illustrated in this article. I wish also to acknowledge my indebtedness to Dr. Adolph Henriques and Dr. Amédée Granger, radiologists, for hearty co-operation in aiding me to obtain these satisfactory roentgenograms.

SCHÖNLEIN'S DISEASE.

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Schönlein's disease, purpura rheumatica or peliosis rheumatica, is, according to Osler[1], the second of the group being purpura arthritic purpura; the other member of this group being purpura simplex, in which a history of previous arthritis is obtainable in patients with hemorrhagic patches under the skin; this is contradistinction to Schönlein's disease, which he (Osler) terms "A remarkable affection characterized by multiple arthritis and an eruption which varies greatly in character, sometimes purpuric, more commonly associated with urticaria or erythema exudativum."

Its etiology, as that of many diseases, is in dispute, some claiming a bacterial and others a non-bacterial cause; of the former, Poynton[2] is one of its advocates, he having found a diplobacillus in the joints, tonsils and skin lesions of patients with this disease, but he has not fully demonstrated Koch's law. Others believe it due to staphylococcus and streptococcus as seen in cases of septicemia with secondary purpura. The advocates of the non-bacterial etiology believe it due to an anaphylactic reaction as that which causes urticaria and its allied lesions.

If we consider the bacterial etiology, we place this disease in the same category as acute rheumatic fever. This brings us to the question, "Is the arthritis primary and the purpura just an incident, or is the purpura primary and the arthritis a sequella?" Metcalfe[3] in 1911 reports two cases, the one of a male adult in which the purpura appeared seven days after the onset of joint symptoms; the other of an adult female in which the skin lesions appeared suddenly with the arthritic symptoms following in 48 hours.

Stelwagon[5] in his description of this disease says that "It is rare." In looking over the records of the Charity Hospital, we find but three cases of arthritic purpura in the ten years, from 1906 to 1915, and of these two are of the simplex variety.

The case that we report is of interest owing more to the fact that the arthritis, purpura, urticaria and angio-neurotic edema have occurred at practically the same time. A similar case was reported by Lemann[6] in 1909, in which he stated that after extensive perusal of records, only two other cases where all the above signs occur at once have ben found by him, the one by Rosenbery[7] and the other by Don.[8]

Case: J. R., white male, age 32, was admitted to hospital April 21, 1916, complaining of swelling of legs and pains in joints.

Family History: Negative for tuberculosis, cancer and hemophilia. No one of four sisters and one brother living and well, have had rheumatism of any sort.

Past History: Has never had any illness in entire life excepting tonsillitis, which had occurred once monthly between the ages of eight and nineteen. Since, and up to the present, has had no trouble from throat.

Venereal History: Denies gonorrhea; had soft sore and bubo at same time two years ago.

Habits: Since the age of eighteen has been a heavy drinker of a mixture of alcoholic beverages and is intoxicated most of the time. Smokes about sixty cigarettes daily and drinks about two cups of coffee.

Present Illness: For the past month has been catching crawfish, walking in the swamp water the entire day. Two weeks before admission had temperature for one day. Three days before admission felt drowsy and had general weakness in both upper and lower extremities; the next morning left knee was so painful that he could hardly walk, also noticed that it was swollen and red; that afternoon same condition of right knee; that night both wrists were similarly involved, also noticed swelling of both feet; the next morning (third day) awaked with both elbows and ankles involved and for the first time noticed that on both thighs and legs there was a "purplish colored rash." Was not aware of any "fever" at any time; has never had a chill, nor vomited. Bowels regular. For the last month has had a slight hacking cough; no night sweats. Appetite good. No sore throat. For one week has had a slight eruption on right chest which itched him.

Physical Examination: Fairly well developed and nourished white adult male. Head is negative. Eyes: Pupils equal and react to light and accommodation. Mouth: Few teeth missing; remainder are badly decayed and poorly kept. Tonsils are hypertrophied and only slightly injected. Neck is negative. Lungs: Sonorous and sibilant rales heard over both right and left. Heart rhythm is regular, no enlargement, no murmur. Abdomen is negative. Upper extremities: Tenderness and slight swelling over both wrists and elbows, redness over both wrists and a few of the interphalangeal joints. Lower extremities: Tenderness, swelling and redness over both ankles and knees. Slight edema of feet. Skin: On right chest about sixth rib in axilla extending to mid-clavicular line is a vesicular eruption most probably herpes zoster. On both thighs, buttocks and legs are variously sized, non-elevated smooth purplish macules which do not disappear on pressure.

On Admission: Temperature 99°, pulse 88, respiration 20.

Laboratory Reports: Urine: Albumen 0.5%; fine and coarse granular casts in large numbers.

Total white blood count of 10,463 per cu. mm.

Differential count: Lymphocytes 26%, endothelial leucocytes 5½%, polymorphonuclears 68½%.

Total red count of 4,200,000 per cu. m. m.

Hemoglobin 75% (Tallequist). Color index .9 plus.

Phenolsulphonephthalein Test:

1st hour	50
2nd hour	25
Total	75

Sputum is negative for acid fast bacilli (two examinations).

Original Wassermann—Negative.

Tschernogubow—Negative.

Patient was immediately put on sodium salicylate gr. 50 and sodium bicarbonate gr. 60, every 4 hours (240 grs. in 24 hours).

April 22: Next morning wheals of urticaria appeared on anterior surface of left forearm; these disappeared within eight hours; no complaint of pains in joints on motion.

April 23: No tenderness on pressure over joints, no pain on motion.

April 24: P. M., felt so improved that he deserted and walked home and about city; drank two glasses of beer. That night noticed that scrotum began to swell and also slight swelling of legs.

April 25: A. M., swelling worse, became alarmed and returned to hospital in P. M. Here examination revealed edema of both eyelids, slight edema of both legs and marked edema of scrotum, which was now as large as a good sized cocoanut. Temperature 99°.

April 26: Salicylates again commenced in same dosage; edema as marked as on readmission. Adhesive strips placed between thighs and scrotum placed on shelf of adhesive.

April 27-28: No reduction of edema of scrotum—edema of legs and eyes almost completely disappeared; incision made into scrotum. Temp. 98.6°.

April 29: Slight improvement in scrotum; cold compresses of sat. sol. magnesium sulphate applied. Temp. 98.6°.

April 30: Edema reduced.

May 1: Marked reduction; scrotum almost normal sized.

May 2: A. M., scrotum of normal size; no edema. Temp. 98.6°.

May 2: P. M., temperature 100°. At first complained of pains in head and was very restless, later slight muscular twitching noticed then became maniacal,

screaming and attempting to get up from bed and had to be strapped. Fearing the condition to be uremia, patient put on active treatment of hot packs, etc., with little results.

May 3: Examination of urine showed still 0.5% albumen with casts microscopically. Still slightly maniacal; given atropin hypodermatically and symptoms disappeared; patient once more rational.

May 3 to 13: Improving gradually and practically cured.

May 17: Patient discharged as cured.

As a resume, we find that:

There is no light thrown on the etiological factor of this disease. The joint symptoms with the carious teeth and hypertrophied tonsils much resemble acute rheumatic fever, but in the entire course the temperature had never risen above 100 degres.

The herpes zoster is no part of this conditon, the purpura and urticaria are present at the same time; there is but a slight leucocytosis; the urine shows a nephritis, but the P. S. T. indicates excellent renal function.

The marked edema of the scrotum also edema of feet and eyes, with the maniacal symptoms, leads one to suspect an edema of the brain as a causative factor of the mania, this belief being further strengthened by the disappearance of symptoms with the administration of atropin. We must, however, not lose sight of the fact that this conditon could have been brought on by the over-action of the salicylates.

Edema of the angio-neurotic type is one of the rare characteristics of this disease.

The treatment is absolute rest in bed until all articular symptoms disappear. Sodium salicylate is almost a specific, but should be given in large doses with sodium bicarbonate. During convalescence iron and arsenic may be given.

In conclusion we wish to thank Dr. John B. Elliott, Jr., in whose service the case was admitted, for the privilege of allowing us to report the case and for his many valuable suggestions.

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PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE THERMOGENIC REACTION OF THE BODY AGAINST INFECTION AND ITS BEARING UPON IMMUNITY.*

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In the early days of our knowledge concerning the nature of pathogenic bacteria in the production of diseases in man and animals, it was assumed that those parts of the body not connected directly or indirectly with the outside, such as the internal organs and tissues, blood, etc., under normal conditions, were sterile or free from bacteria. Recent researches, however, have demonstrated that the invasion of the body by micro-organisms is a constant phenomenon, as they normally get access to the body through the normal barriers such as the skin, mucous membrane, etc.

The presence of bacteria in the internal organs and liquids of the body could be easily proved by cultures from the blood in appropriate media, but, of course, as bacteria are found normally in very small numbers, it is usually negative, as for their detection a relatively larger amount of blood should be employed than that commonly used.

These bacteria, however, are normally destroyed by the organism, as proved by the fact that under normal conditions, in spite of their presence, the normal balance of health is maintained. Experimentally the germicidal action of normal serum may be shown in *vitro*, and it can be shown also in *vivo* that a certain number of pathogenic bacteria can be inoculated into susceptible animals without giving rise to any morbid condition, as proved by us in the following experiment:

A one week old culture of virulent anthrax bacillus on agar was suspended in sterile distilled water and heated to 70 per cent

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C. for 15 minutes to destroy the vegetative forms. The suspension was thoroughly shaken with glass beads in a test tube; a series of dilutions made in sterile water, and the material inoculated into guinea pigs. The number of spores inoculated in each animal was determined by planting 1 cc. of the material on agar before the inoculation. The result is shown in the following table:

Anthrax Bacillus.

No.	Animal	Average weight.	No. of Bact. Inoculated.	Mode of inoculation.	Result.	Remarks
1	Guinea pig	300 grm.	10	Peritoneally.	0	
2	"	300 grm.	10	"	0	
3	"	300 grm.	10	"	0	
4	"	300 grm.	100	"	0	
5	"	300 grm.	100	"	0	
6	"	300 grm.	100	"	0	
7	"	300 grm.	1,000	"	0	
8	"	300 grm.	1,000	"	0	
9	"	300 grm.	1,000	"	0	
10	"	300 grm.	10,000	"	0	
11	"	300 grm.	10,000	"	+	Died after 72 hours.
12	"	300 grm.	100,000	"	+	Died after 68 hours.
13	Control.	300 grm.	0	—	—	—

The above experiment shows that at least 10,000 *Bacillus anthracis* are required to produce a fatal infection in a guinea pig, weighing about 300 grams, and all things being equal, proportionally it would require about 2,000,000 bacilli for an adult man.

Under normal conditions, therefore, pathogenic bacteria are normally destroyed in the body and the normal balance of health is maintained, but when the resistance of the organism is lessened, or when their number is in excess of the antagonistic power of the system, the normal balance is disturbed and the phenomenon of infection or disease is manifested.

What has been said regarding bacterial infection is also applicable to pathogenic protozoa. It is beyond doubt that a certain number of *Entameba histolytica,* for instance, which escape the destructive action of the gastric fluids, may pass through the intestinal canal without giving rise to dysentery, and that in endemic districts, even some of these rhizopods may live and multiply in the large intestine, without causing any disturbance in the host. The same probably is also true of *Plasmodium malariæ,* for it is conceivable that a single bite of an infected anopheles is incapable of producing malaria, unless a disproportionate number of sporozoites are inoculated at a time.

As to the pathogenic flagellates, it is not improbable also that

the bite of more than one infected tsetse fly is required to produce sleeping sickness, and the same may be said regarding other pathogenic trypanosomes, spirochætes, and treponema. The body, therefore, normally, is capable of destroying a certain number of these protozoa and only when the infection is above that number, the phenomenon of disease is manifested.

We have determined, for instance, that at least 1,000,000 *Trypanosoma Lewesi* are required to produce an infection in white rats as shown in the following tables:

Trypanosoma Lewesi.

No.	Animal.	Average weight.	No. of Tr. inoculated.	Mode of inoculation.	Result.	Remarks.
1	White rat	300 grm.	10	Intraperitoneally	0	
2	"	300 grm.	10	"	0	
3	"	300 grm.	100	"	0	
4	"	300 grm.	100	"	0	
5	"	300 grm.	1,000	"	0	
6	"	300 grm.	1,000	"	0	
7	"	300 grm.	10,000	"	0	
8	"	300 grm.	10,000	"	0	
9	"	300 grm.	100,000	"	0	
10	"	300 grm.	100,000	"	0	
11	"	300 grm.	1,000,000	"	*	6 days
12	"	300 grm.	1,000,000	"	*	4 days
13	"	300 grm.	10,000,000	"	*	48 hours
14	"	300 grm.	10,000,000	"	*	48 hours
15	Control	300 grm.	0	—	—	—

and that at least 100,000 *Trypanosoma Bruci* is the fatal dose for the same animal, as shown in the following table:

Trypanosoma Bruci.

No.	Animal.	Average weight.	No. of Tr. inoculated.	Mode of inoculation.	Result.	Remarks.
1	White rat	300 grm.	10	Intraperitoneally	0	
2	"	300 grm.	100	"	0	
3	"	300 grm.	1,000	"	0	
4	"	300 grm.	10,000	"	0	
5	"	300 grm.	10,000	"	0	
6	"	300 grm.	100,000	"	*	Died after 5 days.
7	"	300 grm.	1,000,000	"	*	Died after 48 hours.
8	"	300 grm.	10,000,000	"	*	Died after 48 hours.
9	Control	300 grm.	0	—	—	—

As to Metazoan parasites, there is no doubt that of the number of agchylositoma and trichina larvæ, for instance, which may gain entrance at a time into the intestinal canal, most of them are destroyed in the stomach and intestine, and only a small percentage succeed in adapting themselves to continue life in the small intestine, and if their number is small, they may even be incapable of giving rise to any appreciable disturbance in the body.

Finally, that the host normally is not only capable of resisting and overcoming a certain degree of invasion, but that it can also

overcome a manifested infection during the course of a disease, is well illustrated in the spontaneous cure which usually occurs in a great number of diseases. Thus, cases of typhoid fever, diphtheria, tuberculosis, relapsing fever, ascariasis, etc., when uncomplicated, not uncommonly recover without any special treatment beyond an appropriate diet and hygienic regulation.

Means of Defense of the Body.

The normal defenses of the body against infection are several, namely: (1), Mechanical; (2), Organotropic and Physicochemical; (3), Humoral; (4), Histogenic; (5), Cytogenic; and (6), Thermogenic Phenomena.

(1) MECHANICAL: The skin and mucous membrane act as the most efficient barriers against infection. An abrasion of the skin or of the mucous membrane for instance, is essential for the entrance of *Treponema pallidum*. The peristaltic action of the intestines in severe diarrhea or violent vomiting may cause the mechanical expulsion of intestinal parasites. The larvae of hookworm are more apt to penetrate through the thinnest part of the skin of the foot, and the same reason explains why mosquitoes bite with preference the white rather than the negro, or the native in tropical countries who have a hard skin, a fact which explains also why the whites are more susceptible to yellow fever, malaria, etc.

(2) ORGANOTROPIC AND PHYSICOCHEMICAL: The chemistry of the body or of the part has an important relation to infection. The fact that the primary focus of tuberculosis is a lymph gland or lymphoid tissue; that diphtheria affects the mucous membranes; dysentery the large intestines; malaria the blood; hookworm the duodenum; paragonomiasis the lungs, etc., and that these parasites usually perish when transplanted experimentally to other organs, than those commonly inhabited by them, is proof of the antagonistic action of certain organs and tissue to infection.

This, of course, is not a teleologic phenomenon, nor a matter of chance, but depends upon the chemistry of the part. Nevertheless, besides the chemistry, other factors, perhaps physical agencies, play an important role, and this may explain the absence of trichina embryos in the heart muscle.

(3) HUMORAL: All infections have a tendency, more or

less, to produce alterations in the body which lead to the appearance in the blood and humors of certain substances, antibodies or amboceptors, more or less defensive in nature. These anti-bodies may be in the nature of antitoxin (diphtheria); agglutinins (typhoid fever, trypanosomiasis); precipitins (hydatid cyst) etc. The action of these antibodies, in most instances, especially in protozoan, is unappreciable, but the natural disappearance of *Trypanosoma lewesi* in the rat; of *Spirochæta recurrentis* and of *Treponema pertenue* in man, and the resultant immunity conferred, after recovery from these infections, are examples of the antagonistic action of these antibodies.

(4) HISTOGENIC: The lodgment of a parasite in the tissues is the source of irritation which gradually gives rise to a lymphositic infiltration and finally to a hyperplasia of fibrous tissue around the parasites. Similar is the case in tuberculosis and some other bacterial diseases in which, when uncomplicated by a secondary infection, the growth of fibrous tissue surrounding the lesion may be so perfect as to constitute a distinct encapsulation. The purpose of these histogenic changes, of course, are defensive, because by restricting the infection, damage to the nearby tissue is prevented.

(5) CYTOGENICS: The cellular defense of the organism against infection is seen in the much discussed phenomenon of phagocytosis. By this is understood the property which certain cells of the body have to ingest, destroy, and digest the invading micro-organism, or modify and neutralize its action. This phenomenon is especially manifested by the endothelial cells (macrophages) and leucocytes, but almost any cell of the body, under certain conditions, may exhibit some degree of phagocytic activity.

6) THERMOGENIC: In the same way in which birds are immune to anthrax, because their normally high temperature is detrimental to the life of anthrax bacillus, so likewise man is immune to a number of bacterial and parasitic diseases peculiar to animals of lower organization. The fact that a certain temperature is essential for the life of a given organism, explains for itself that our body temperature is favorable for the existence of pathogenic bacteria and parasites peculiar to man, but this also points to the fact that any rise in our body temperature must necessarily have also a detrimental action against them. Thus

the high temperature common to infectious diseases (typhoid, diphtheria, pneumonia, etc.) undoubtedly exerts an injurious action upon the viruses of these diseases, and in this respect it may be said that the thermogenic activity of the body acts as one of the most efficient means against infection.

The thermogenic activity of the body against infection may properly be considered under two forms, namely: The normal or physiological and the morbid thermogenic activity.

The Normal or Physiological Thermogenic Activity of the Body.

Body: By the normal or physiological thermogenic activity of the body is understood the normal temperature of 37 degrees to 38 degrees C. of the body, which, though favorable to the life of pathogenic bacteria and parasites of man, at the same time represents an important factor in the normal elimination of certain infections common to animals of lower organization, and this for instance explains our immunity against tuberculosis of birds and of cold blooded animals respectively.

That changes in temperature have an important bearing upon infection, is well illustrated in the classic work of Pasteur, who succeeded in infecting chicks with anthrax bacillus, to which they are normally immune, by lowering the temperature of the animal.

In this connection it may be mentioned that the common expression of "catching cold," "exposure," etc., of the clinicians as a predisposing factor in most infections, has an important etiological significance, as it in reality means a temporary lowering of the temperature in some part of the body which by favoring the growth and multiplication of pathogenic bacteria in this locality it gives rise first to a local infection, which in time may become generalized. Thus, diphtheria, pneumonia, measles and even tuberculosis, etc., usually begin with "a cold;" that cachectic persons, or those with a weak constitution, are more predisposed to infection, is explained also by the fact that in these persons the temperature not uncommonly is subnormal. To summarize, therefore, the above facts clearly show that infection in general beside other things, is a matter of temperature and that the normal thermogenic actvity of the body plays an important rôle in the prevention of diseases.

The Morbid Thermogenic Activity of the Body.

The morbid thermogenic activity of the body is manifested by a rise in the temperature which commonly occurs during the course of certain infections. This rise in temperature, however, is not a constant phenomenon, as there are a great number of diseases in the course of which the temperature remains unchanged or even becomes subnormal, and in this respect it may be said that the disease of man may be divided into two main groups, namely: *Febrile and afebrile* diseases.

Febrile Diseases.

In this group are included most of the bacterial diseases, of which typhoid fever and diphtheria may be mentioned as a type. There are others, such as pyogenic infections, which, though also manifested by a rise in temperature, not uncommonly, when localized, may be afebrile. Finally, other bacterial infections, of which tuberculosis is a type, when uncomplicated, may properly be regarded as afebrile. It is true that certain forms of the disease, such as pulmonary tuberculosis, is accompanied with more or less a mild degree of fever, but it should be remembered that tuberculosis of the lung usually is complicated with cavity formation and mixed infection.

Another form of tuberculosis which is accompanied with fever is tuberculosis of the peritoneum, but bacteriological research commonly shows the presence of pyogenic bacteria in the exudate of the peritoneum and these bacteria, and not the tubercle bacillus, it seems, are the cause of the fever. That such is the case may be proved by the fact that in cattle, which normally are very resistant to pyogenic infections, tuberculosis of the peritoneum or Perlsucht, not uncommonly shows no appreciable symptoms and the disease follows its normal chronic course, giving rise to the formation of tubercles of fairly large size.

Tuberculosis of the meninges is usually accompanied with high fever also, but here again as in tuberculosis of the lung or the peritoneum, secondary pyogenic infection is the rule, and besides, it is not improbable that the mechanical irritation of the brain produced by the tubercles, and not by the tubercle bacillus or its products, *per se,* are responsible for the fever. In other words, the same febrile reaction would be obtained if experi-

mentally grains of sand were introduced in the meninges of an animal.

Finally, a further proof that tuberculosis, when pure, that is, when uncomplicated by pyogenic infection, is afebrile, is shown by the facts that tuberculosis of the joints, tubercular cold abscesses, tuberculosis of the lymph glands, mesenteric, cervical and even of the mediastinum and the lung proper may persist for a long time, years, without giving rise to any appreciable febrile symptoms.

It is known that acute miliary tuberculosis is a typical febrile disease, and this may possibly suggest the toxic nature of the virus, but this also shows that if *Tubercle bacillus* produces a toxin, this is in such small amount as to require a disproportionate number of lesions to produce such effect. In other words, if a comparison is made between tuberculosis and diphtheria for instance, all things being equal, and supposing that a given lesion or a certain degree of infection of diphtheria, produces a unit of toxin; for the production of the same unit of toxin by tuberculosis, it will be required a million or more of such lesions, which is a proof, we believe, of the non-toxic nature of *Tubercle bacillus.*

In the strict sense, it may be said that tuberculosis is a mild non-fatal affection in so far as man in reality dies of the complications such as septic infections, mechanical agencies, etc., during the course of the disease, to which the lesions of tuberculosis are potent predisposing factors.

Afebrile Diseases.

Among the afebrile diseases may be included: (1) *All fungoid diseases* when not complicated by secondary infections. One exception perhaps may be made, namely, generalized blastomycosis, but in this, secondary infection is the rule.

(2) *Most protozoan diseases* excepting malaria and relapsing fever. It may be mentioned, however, that in tertian and quartan malaria, the febrile period is relatively short, 8-10 hours out of the 48 hours and in subtertian it often is only 12 hours, and that in relapsing fever, the fever is only manifested at relatively short intervals.

As to trypanosomiasis, the disease also shows febrile periods, but they commonly are of relatively short duration. It may be

said further that Trypanosomes as well as *Plasmodium malariæ* in the chronic stage of the disease, may persist in the blood of the host for a long time without giving rise to any appreciable signs of fever.

(3) ALL THE METAZOAN DISEASES, when uncomplicated, excepting the acute stage of trichiniasis. It is true that uncinariasis, paragonomiasis, schistosomiasis, may be manifested by febrile atacks, but these commonly are due either to localized or generalized secondary bacterial infection.

The above, briefly outlined, shows that the organism reacts thermogenically against certain infections, while it apparently remains inactive for others. Of course no invariable rule or single cause can be given regarding this reaction, as it may vary according to conditions, but in general it may be said that the thermogenic activity is in relation to the toxic nature of the virus.

Thus, toxic bacterial diseases like diphtheria, typhoid, pneumonia, etc., are commonly accompanied with high fever, while those in which the toxic nature of the virus although perhaps exists, plays a secondary importance, and which for practical purposes may properly be neglected in the symptomatology of the disease, the fever is merely slight or entirely wanting. Such is the case, for instance, in fungoid and most protozoan and metazoan infections. Between these two extremes, namely: toxic or febrile and non-toxic or afebrile infections, we find all intermediate variations, which, of course, correspond to the nature of the virus as the case may be.

Among the bacterial diseases however, there are also typical examples of non-toxic and afebrile infection, such as leprosy and cholera, and tuberculosis also may properly be included among this type, since, as already stated, the fever and apparent toxic symptoms in tuberculosis is usually due to secondary infections, to an overdose of the virus, or to mechanical irritation of the brain by the tubercle in tuberculosis of the meninges. It may be said also that, as a matter of fact, the toxic products, or the so-called "endotoxins" of *Bacillus choleræ, B. tuberculosis, B. lepræ*, etc., are still awaiting demonstration.

It may be added in this connection that tetanus, a typical toxic infection, is not uncommonly afebrile, but this may perhaps be explained by the fact that the amount of toxins produced by *Tetanus bacillus* is out of proportion to the reaction of the body

and in this respect it behaves like other toxic infections, as diphtheria for instance, in which, if the infection is very severe, a depression of the body reactions invariably is the result.

Experimentally, it can be proved that the reaction of the body is in relation to the degree of infection, intensity of the toxic action or number of the invading organism. Thus if 10,000 *Bacillus anthracis,* or a minimal lethal dose of diphtheria toxin is inoculated into a guinea pig of average weight, the reaction follows its normal course and the animal dies in two to four days. But if, instead of 10,000, 100,000,000 or more bacteria; or, if instead of the lethal dose of diphtheria toxin, one hundred times that amount is inoculated, the guinea pig will not show any reaction, but, to the contrary, the animal usually dies in 12 to 24 hours without any manifestation of fever and not uncommonly the temperature becomes subnormal.

This clearly shows, therefore, that, besides the quality, quantity bears an important relation to the thermogenic reaction of the body, and also that a good thermogenic reaction in such infections may be taken as a favorable sign, as it really means, either a good reactive power of the body, or that the degree of infection is not too great.

What has been said regarding the thermogenic reaction of the body against bacterial infection is also applicable to protozoan and metazoan infection, with the only difference that while the manifestation of high temperature in the bacterial diseases is the rule, in protozoa and metazoa it is the exception.

As to the bearing which this thermogenic activity of the body has upon the course of the infections, this is clearly shown not only in regard to the prognosis of the disease, but also concerning the immunity conferred after the infection. Thus febrile infections, such as diphtheria and typhoid fever, usually confer immunity, while non-febrile diseases as leprosy, tuberculosis, cholera, etc., do not.

As to fungoid diseases, which are all afebrile, not a single example of acquired immunity is known. As to protozoan, only relapsing fever and yaws are known to confer immunity, while in all metazoan infections, which, like fungoid diseases, are typical afebrile diseases, no immunity is known.

Common clinical experience shows the effect of the thermogenic reaction of the body during the course of diseases in gen-

eral; thus, cases of typhoid fever, diphtheria, pneumonia, etc., when uncomplicated, if accompanied by a more or less regular fever, between 103 and 104 dgrees F. usually ends in recovery; those in which the temperature is irregular, are of uncertain termination, while those in which the temperature is relatively low or subnormal, or in which this is maintained for some time over 104 degrees F. (due to a hyper reaction of the body) usually ends fatally.

The effect of temperature on metazoan infections is clearly shown in the spontaneous expulsion of tape and round worms and other intestinal parasites, which not uncommonly occurs during the course of infectious diseases, and the absence of fever in all fungoid, and most protozoan and metazoan infections, probably explains the incurable nature of those affections.

It seems, therefore, that the *dictum* "cold is death and heat is life," as applied to the above conditons could be made use of in the successful treatment of diseases by finding some artificial means for instance, by means of which the temperature of the body or of a part, could be maintained at a certain degree for a certain time during the infection provided such temperature would exercise a detrimental action upon the life of the invading organism, while it would have no appreciable injurious effect upon the patient. This we believe opens a promising field for investigation, and let us hope that thermotherapy may prove to be an efficient assistance to medicine in general and to tropical medicine in particular, in combating those generally recognized as incurable diseases of the tropics.

OBSERVATIONS OF SPLENOMEGALY.*

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Obviously no mention will be made of splenic enlargements occurring in such diseases as typhoid fever, malaria, sepsis, nor do splenic tumors, cysts, or metastatic growth interest us in these observations.

Splenomegaly in an essential or etiologic sense—and splenomegaly as a dominant feature of special syndromes, or as the actual disease itself is the question under consideration. Of these I wish simply to mention the leukemias and primary or

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pernicious anemia as examples of known diseases with splenomegaly, with a leucocytosis in one instance and in the other instance pernicious anemia as a possible splenomegaly with a leucopenia. Certainly most cases of pernicious anemia do not have a splenic enlargement. A passing word may also be said about Vasquez's disease, polycythemia (Polyglobulism) which is a splenomegaly with a high red cell count.

Follow then the splenic enlargements which do interest us, namely, the so-called splenic anemias (Banti's disease, Minkoski's disease, Gaucher's disease, Pseudo-leûkemias, Dorothy Reed), all splenomegalies with leucopenia.

Textbooks are vague about splenic anemia and for the most part observations published are not clear about just what splenic anemia is. For years now I have been collecting cases of splenic enlargements with a hope of classifying them into some shape compatible with known classifications. I have in all thirynine cases, of which thirty-six are males between the ages of fourteen and twenty-six, and three are females between the ages of three and twenty-seven, from which I have drawn the following observations and conclusions.

These thirty-nine cases do not include cases of leukemia nor cases of pernicious anemia, nor malaria, nor cirrhosis, nor Hanot's disease, nor Vasquez's disease, etc. They are then all cases of so-called splenic anemia, or better essential splenomegalies. In the first division I place two remarkable examples of simple splenomegaly, a supposedly family, or hereditary type of splenic enlargement without constitutional symptoms of whatsoever type, namely a simple enlarged spleen and nothing else. One of these cases is a telephone worker, a native Louisianian, male, twenty-seven years of age, a man who strings the wires on the poles. He had never had any symptoms. He came under observation because he was conscious of a large mass in his abdomen, which was heavy and interfered with his pole climbing. Dr. F. W. Parham removed this spleen at the Charity Hospital in New Orleans, and the man is again climbing poles. There were no symptoms before the operation and there have been none since. (Two years). The blood picture of this case was normal and is still practically normal. The extirpated spleen weighed four kilograms and the microscope showed a general fibrosis with

marked congestion, which may be taken as the histological picture for all splenomegalies of the types under consideration.

A young negress is the second example of this type. She does ordinary chambermaid work and though conscious of the enlarged spleen, has no symptoms. I saw her by accident. She had an attack of influenza and was in the Charity Hospital ward for an acute febrile cold, or grippe. She refused splenectomy and is apparently well though the splenic mass is two fingers below the umbilical line. It is now three years since I first saw her. These two cases are simply splenomegalies without symptoms—in neither case could I get any positive hereditary or family history, a rather difficult type of history to get at best.

The remaining splenomegalies of this series are all associated with leucopenia. I first subdivide them into febrile and variable-febrile. What I mean is febrile, having fever or temperature practically all the time—constant temperature. Variable-febrile —fever does occur, but paroxysmally, only occasionally and lasting only a few hours or at most days, with months of non-febrile invalidism, the splenomegaly increasing without temperature as well as with it.

Under the class febrile I place three cases which were respectively: One, a Louisiana lady of Creole (French-Spanish extraction), a native of New Orleans; two, an adult male of mixed origin, Louisiana born; and three, a Mississippian, of Anglo-Saxon origin. The temperature in these three cases lasted six weeks to eight months without a single intermission. I mean no twenty-four hours passed without some elevation of temperature. All three of these cases were like this.

For a convenience, I will call this Class A.

Case I, Class A. A New Orleans physician's wife had a baby in June, 1912, and temperature began to show itself three weeks after the delivery. I saw her about three weeks after the temperature had begun. The remarkable thing in her case on examination was the large spleen, leucopenia (1250) and the absence of malarial plasmodia. She died after a constant temperature lasting for three months. Her last ten days of life were associated with general glandular enlargement. So great was the cervical and adenoid overgrowth that she died practically asphyxiated by the glands.

The solution of her problem came about a year later, when an

artist's model, a young man of beautiful proportion and the picture of health, began having fever and an enlarged spleen. After 5 months, in which time temperature was present constantly, and was very high for periods of six to eight weeks with one intermission of three weeks, he died, and just before death all the lymphatic glands showed marked enlargement. The spleen at autopsy weighed two kilograms and the glands proved to be of the Dorothy Reed type, namely granulation tissue, giant cells (mononuclear and multinuclear) and eosinophiles. Hence these two cases are probably examples of acute Hodgkin's disease or pseudo-leukemia of the Dorothy Reed type. Though I have seen no such description of any such clinical history in Hodgkin's disease, Goodkind in the Medical Clinics of Chicago, Vol I, No. II, September, 1915, describes a similar case, but of much more chronic type.

The third febrile case was a farmer from Mississippi, who after six months of fever came to New Orleans and subsequently under my care through the kindness of Dr. Rudolph Matas. This man Yates showed a large spleen, constant fever, 99-101, and leucopenia (1200-860). Splenectomy was done; the spleen weighed 1.380 kilograms and showed fibrosis and congestion. The temperature continued uninterruptedly for two months after the operation and he died without glandular involvement. Whether this case is the same type as cases I and II, I am unable to state. No autopsy was held, only an examination of the extirpated spleen, which was similar to case II.

The class of variable-temperature is more extensive. For my purpose I subdivide this class into hemorrhagic and non-hemorrhagic. Hemorrhagic with varying temperature and hemorrhagic without temperature.

Class B. Hemorrhagic with varying temperature. Of these I have twelve cases, eight of which were males of the Latin or mixed Latin races (Spanish, French and Central American Spanish-Indian), one native Louisianian mulatto woman, part Latin extraction, and three male negroes. All twelve presented large spleens, leucopenia varying from 3200-1200; and none showed the malarial parasite. In three cases, there was hemorrhage from the stomach; two of them had been admitted into the ward of the Infirmary as gastric ulcers. In six there was hemorrhage from the intestines. These six cases were associated with more fre-

quent atacks of temperature and all had definite atrophic cirrhosis and ascites (Banti's syndrome). In two there was hemorrhage from the nose and lungs and in one there was hemorrhage from the kidney associated with gastric hemorrhage. Diagnosis in this case had been made as malarial hematuria. Of these twelve all are dead. In four splenectomy was done with death in three instances within a week after the operation. The remaining one case lived six weeks and died of exhaustion. Autopsy in five of these twelve cases showed fibrous spleens and no glands and in three atrophic cirrhosis and in four a marked varicosity and phlebitis of the portal vein in all its branches.

Class C. Hemorrhagic without temperature. Of these I have thirteen, of whom one is a native Anglo-Saxon child, aged three years, still living; five Italian born men, living in Louisiana and six Central American Spanish-Indian men, one Massachusetts born Anglo-Saxon, living in Guatemala. All thirteen examples are dead except two now under observation; one the child three or four years of age, and one a man of twenty-seven years. The two living examples have shown besides splenomegaly, leucopenia and anemia, hemorrhage, in both cases, from the intestinal canal only. Of the remaining eleven, five were autopsied and three had splenectomies performed. The autopsied cases showed portal varicosity and phlebitis in two cases with atrophic hepatitis. One which had had a splenectomy done forty-eight hours before death, showed an intestine full of blood. The patient had literally bled to death into his intestinal canal. A careful search of the whole gut's length showed no point of hemorrhage. One case at autopsy showed a varicose state of the veins of the esophagus. This patient had had extensive gastric hemorrhages. Indeed death was from loss of blood.

Class D. The remaining nine cases came under observation very late. Of these four were young men from Central America of Spanish or Spanish and Indian or Spanish and negro combination. Three were youngish negro men, one a Spanish lady living in Honduras, wife of a Louisiana physician practicing there in La Ceiba, one an Italian male, born in New Orleans; one of these cases came under observation after eighteen years' of occasional attacks of fever, lasting from three to four weeks and gradual emaciation and ascites. All nine were practically cases of atrophic cirrhosis and splenomegaly (Banti's dis-

ease) needing to be tapped every seven to ten days for the ascites; all but one are dead. Death occurred without fever and without bleeding, apparently from inanition. Three died in coma; one case was brought into the hospital comatosed and died four hours after admission.

Autopsies were done in three cases and portal varicosity and phlebitis were found in two of these cases. In one an antemortem thrombus was seen in the splenic vein and the entire colon was gangrenous (mesenteric thrombosis). This example was one of the comatose cases. All the cases in Class D were in so late a stage of the disease that no differentiation could be made. Banti's syndrome was the evident condition. There were no splenectomies in any of these cases.

CONCLUSIONS.

That splenomegaly without leucocytosis or with leucopenia exists in an acute state called splenic anemia, better acute Banti's disease, or acute Hodgkin's disease, according to whether the glands are involved or not. Cases without glandular involvement show much larger spleens than those of the pseudo-leukemic type.

That a sub-acute splenomegaly exists with continued fever and hemorrhage and without hemorrhage; also with hemorrhage and only occasional temperatures.

That chronic splenomegaly is usually part of Banti's syndrome, though it may be a simple enlargement of the organ without other signs or symptoms.

That probably the continued febrile cases are special infections, as for example the disease known as Kala-Azar, and probably have nothing to do with Banti's disease, splenic anemia, nor Gaucher's disease. Of this latter, Gaucher's disease, I have seen no example. I should say this disease probably is a malignant type of splenic enlargement, requiring the presence of a special endothelial cell for a diagnosis.

That Vasquez's disease is a special entity as are the leukemias; all examples of splenomegalia with an increase in the leucocytes in the blood in the one instnce, and in the erythrocytes in the other.

That splenic anemia of the Banti's type is most common in young men between the ages of sixteen and thirty-five and most often seen in Central American hybrids, Italians, Spaniards and negroes—rare in women, children or in men of Northern countries.

The essential morbid anatomy of splenic anemia is a fibrosis of the spleen with marked increase in the circulation of that organ, and a thickening of its capsule. In a large proportion of my cases autopsied, portal varicosity with phlebitis was present, which phlebitis is in all probability the source of the temperature and the cause of the subsequent atrophic cirrhosis. In a general way the symptom complex necessary for a diagnosis of these conditions may be said to be as follows:

An enlarged spleen,—more or less marked secondary anemia hemolytic in type, with a peculiar yellowish tinge to the skin, less brilliant than that of pernicious anemia, but decidedly marked —a bluish sclera upon which a yellow tinged sub-conjunctival fat is to be made out, most marked over the angle of aperture and at the inner canthus of the eye ball—a constant leucopenia—normal or low blood pressure and a negative urine.

The diagnosis of these conditions may be said to rest upon the two essential factors—splenomegaly and a leucopenia.

Cultures made by Dr. J. A. Lanford, pathologist of Touro Infirmary, showed a diphtheroid organism in five spleens; one blood culture showed a diphtheroid organism; other spleens and blood were negative. These diphtheroid organisms described by Negri, Bunting and Yates are probably a laboratory finding only and are not recognized as peculiar to any special disease.

It is possible that the hemorrhagic cases are entirely dependent upon passive congestion of the abdominal organs and due to portal phlebitis and varicosity and mesenteric obstruction, as in cirrhosis. Also that the temperature of splenic anemia when constant is due to the constant active phlebitis. The paroxysmal temperatures are either evidences of acute or sub-acute Hodgkin's disease, or are expressions of an active etiologic element not yet discovered, as for instance in Kala-Azar—a *Herpetomonas,* Leger, or Leishman-Donovan body; that the etiology is entirely unknown.

A PLEA FOR A NATIONAL COMMITTEE ON THE ERADICATION OF MALARIA.*

By FREDERICK L. HOFFMAN, LL. D.

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Foremost among the public health questions demanding more adequate and extended consideration are malarial diseases and their sequelæ. As a cause of death malaria throughout the country is of relatively small importance, but in certain sections the disease prevails to an alarming extent, and in quite a number of localities even the pernicious form is of common occurrence. In the absence of trustworthy vital statistics for all of the Southern states, including the rural areas, it is impossible to estimate with accuracy the probable mortality and morbidity from malarial diseases. The problem is complicated by the frequency of erroneous diagnoses in many rural sections where there are reasons for believing that cases are reported as malaria which in all probability are typhoid fever. This source of error is not, however, of much practical importance for the purpose of the present discussion. For the United States registration area, which is exclusive of practically the entire rural South, the malaria mortality is only 2.6 per 100,000 of population. For nine representative Southern cities the mortality is 22.1 per 100,000. It may safely be assumed that for all the urban communities of the South the average malaria mortality is approximately 25 per 100,000; for the rural areas the rate is probably not less than 50 per 100,000. For all of the Southern states the total population for 1915 may be conservatively placed at 31,820,000. The proportion of urban population is, on the basis of the last census, about 22.5 per cent. If, therefore, we apply a rate of 25 per 100,000 to the urban population of the South, estimated at 7,160,000, we have an approximate mortality from malaria of 1,790. If we apply a rate of 50 per 100,000 to the rural population of the South, estimated for 1915 at 24,660,000, we have 12,330 additional deaths from malaria. For the remainder of the country the rate, as determined for the registration area of 2.6, may be reduced to 2.0, since the Southern cities included in the registration area have already been considered in the preceding estimate. Assuming, therefore, a rate of 2.0 per 100,000 of population for

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the Northern and Western states, the resulting number of deaths from malaria in these sections is about 1,400, which, combined with the estimated number of deaths for the urban and rural South, gives an aggregate total of 15,520 deaths from malarial diseases for the continental United States as a whole.

The social and economic importance of malaria is, however, much more accurately determined by the frequency of its occurrence as a disease. The fatality rate in malarias is, as a rule, very low. In Mississippi, for the period January to December, 1913, the fatality rate was 1.3 per cent. for white cases, and 2.6 per cent. for colored cases. For both cases combined an average fatality rate of 1.5 per cent. is probably a conservative assumption. On the basis of an assumed fatality rate of 1.5 per cent., there would, therefore, be approximately 1,035,000 cases of malaria throughout the entire country during the course of a year. The social and economic loss resulting from this enormous amount of sickness can hardly be more than guessed at in view of the inadequacy of our existing statistical information. For the purpose of emphasizing the urgency of more adequate consideration, whether medical, scientific or statistical, the following tables have been brought together in a convenient form in support of the resolution introduced by me in Section 9, on Public Health, of the Second Pan-American Scientific Congress, and unanimously adopted by that congress in final session on January 8, 1916, reading as follows:

"That all American countries inaugurate a well-considered plan of malaria eradication and control based upon the recognition of the principles that the disease is preventable to a much larger degree than has thus far been achieved, and that the education of the public in the elementary facts of malaria is of the first order of importance to the countries concerned."

Preliminary to the tables following, it may be pointed out that, while the malaria death rate in the United States registration area—that is, chiefly the Northern and Central Western states and Southern cities—is only 2.6 per 100,000 of population, it is 3.4 for Havana, 22.1 for representative Southern cities of the United States, 66.5 for Jamaica, 131.2 for Bahia, Brazil, 219.6 for Trinidad and Tobago, 590.4 for British Guiana, and finally, 643.4 for British Honduras. It may also be pointed out in this connection that in six Southern states according to statistics collected by the United States Public Health Service, chiefly under the direction of Dr. R. H. von Ezdorf, including 8,519 cases, 65.2

per cent. were of the tertian type, 22.0 per cent. of the estivo-autumnal type, and 12.8 per cent. of the quartan variety. The observations and conclusions following rest upon the generally accepted definition, according to Gould and Pyle, that malaria "is a specific infectious disease depending upon the presence in the blood of one or more of several species of closely allied parasites (Hæmosporidia), which develop within, and at the expense of, the red blood-corpuscles of the infected individual, resulting, according to the species and number of the parasites present, in more or less periodic febrile paroxysms, or in continued fever."

Table I exhibits the mortality from malaria in the registration area, first, for both sexes combined, and second, for males and females separately, by divisional periods of life:

TABLE I.—MORTALITY FROM MALARIA,

U. S. Registration Area, 1910-1914—Males and Females.

Ages	Population	Deaths from Malaria	Rate per 100,000 Population	Per Cent. Distribution
Under 5.....	31,559,740	1,901	6.0	24.2
5-14	55,870,822	788	1.4	10.0
15-24	58,873,965	875	1.5	11.1
25-34	52,548,817	835	1.6	10.6
35-44	41,943,446	763	1.8	9.7
45-54	29,773,733	745	2.5	9.5
55-64	17,829,891	734	4.1	9.4
65-74	10,151,567	631	6.2	8.0
75 and over..	4,283,036	554	12.9	7.1
Unknown	.....	33	..	....
All ages ...	302,835,017	7,859	2.6	100.0

TABLE I-A.—MORTALITY FROM MALARIA,

U. S. Registration Area, 1910-1914—By Sex.

	Males			Females		
Ages	Male Population	Deaths from Malaria	Rate per 100,000 Population	Female Population	Deaths from Malaria	Rate per 100,000 Population
Under 5..	15,984,134	967	6.0	15,575,606	934	6.0
5-14	28,170,678	387	1.4	27,700,144	401	1.4
15-24 ...	29,758,695	421	1.4	29,115,270	454	1.6
25-34	27,654,370	419	1.5	24,894,447	416	1.7
35-44	22,082,077	418	1.9	19,861,369	345	1.7
45-54	15,776,516	409	2.6	13,997,217	336	2.4
55-64	9,263,101	423	4.6	8,566,790	309	3.6
65-74	5,075,105	316	6.2	5,076,462	315	6.2
75 and over	2,025,909	285	14.1	2,258,027	269	11.9
Unknown		21	..	.....	12	..
All ages	155,789,685	4,068	2.6	147,045,332	3,791	2.6

This table emphasizes for both sexes the exceptional frequency of malaria in early life and the importance of the disease as a direct or contributory factor in infant mortality. It is shown that out of the mortality from malaria at all ages, 24.2 per cent. of the deaths occurred at ages under 5 years. It is shown furthermore that the rate of relative incidence diminishes rapidly from infancy to early adolescence, increasing gradually during middle life, and reaching a second maximum point of frequency in advanced age.

The second table exhibits the mortality from malaria in more detail at ages under 5 years:

TABLE II.—MORTALITY FROM MALARIA IN INFANCY.

U. S. Registration Area, 1910-1914.

Ages	Population	Deaths from Malaria	Rate per 100,000 Population	Per Cent. Distribution
MALES AND FEMALES				
Under 1 yr.	6,581,885	729	11.1	38.4
1 year	5,867,037	485	8.3	25.5
2 years	6,431,998	316	4.9	16.6
3 years	6,401,424	209	3.3	11.0
4 years	6,277,396	162	2.6	8.5
Under 5	31,559,740	1,901	6.0	100.0
MALES.				
	Male Population			
Under 1 yr.	3,337,487	385	11.5	39.8
1 year	2,974,647	233	7.8	24.1
2 years	3,262,362	153	4.7	15.8
3 years	3,224,000	111	3.4	11.5
4 years	3,185,638	85	2.7	8.8
Under 5	15,984,134	967	6.0	100.0
FEMALES.				
	Female Population			
Under 1 yr.	3,244,398	344	10.6	36.8
1 year	2,892,390	252	8.7	27.0
2 years	3,169,636	163	5.1	17.5
3 years	3,177,424	98	3.1	10.5
4 years	3,091,758	77	2.5	8.2
Under 5	15,575,606	934	6.0	100.0

According to this table, the incidence of the disease is highest during the first year of life. For both sexes combined, of the deaths from malaria at all ages under 5 years, 38.4 per cent. occurred at ages under one year, or, respectively, 39.8 per cent. for

males and 36.8 per cent. for females. The table is particularly suggestive in connection with scientific studies of the spread of the disease through infected mosquitoes obtaining their infection through neglected or unprotected infants during the earliest period of childhood. Since as far as known malaria can only be spread through existing cases of the disease, and by means of infected mosquitoes, the adequate protection of small children against the bite of the mosquito is therefore one of the very first requirements of an effective campaign against the spread of the disease.

The correlation of malaria frequency to an excessive rainfall is too well known to require extended consideration. The table following, however, will prove of interest in that the population estimates have been corrected throughout for the varying lengths of the months, so that the resulting rates per million of population may be accepted as trustworthy and conclusive:

TABLE III.—SEASONAL INCIDENCE OF MALARIA.

U. S. Registration Area, 1910-1913.

Month	Population (Corrected)	Deaths from Malaria	Rate per 1,000,000 Population
January	236,156,155	257	1.1
February	216,092,575	234	1.1
March	238,203,415	250	1.0
April	231,528,813	316	1.4
May	240,320,075	442	1.8
June	233,577,358	507	2.2
July	242,420,787	667	2.8
August	243,471,978	904	3.7
September	236,596,323	1,018	4.3
October	245,540,466	956	3.9
November	238,598,033	534	2.2
December	247,608,944	297	1.2
Total	2,850,114,922	6,382	2.2

In connection with this table the fact, however, must not be lost sight of that the same represents conditions throughout the country and not with special reference to the Southern states, where, quite probably, the monthly incidence would slightly vary on account of different climatological conditions. According to the table under consideration, the mortality from malaria is highest during September, when it attains to 4.3 per 1,000,000, in contrast to a minimum rate of 1.0 during the month of March.

The relative frequency of malaria varies not only according to sex, but even much more so according to race. The returns have

been combined for five Southern cities, for more or less of a ten-year period (1903-1915), to provide an adequate basis for average rates of at least approximate accuracy.

TABLE IV.—MALARIA MORTALITY, BY RACE AND SEX, Five Southern Cities (1903-1915)

	Population	Deaths from Malaria	Rate per 100,000 Population
WHITE RACE			
Males	3,639,271	267	7.3
Females	3,812,525	153	4.0
COLORED RACE.			
Males	1,499,336	263	17.5
Females	1,809,212	333	18.4

It is shown by this exceedingly interesting comparison for five representative Southern cities—(data lost, names of cities not now obtainable)—that there is a decided difference in the sex incidence of malaria frequency among the white population, while for the colored the rates are practically the same, with a slight excess on the part of women. For the white population the male rate is 7.3 per 100,000, against a female rate of only 4.0. Among the colored population the male rate was 17.5, against a female rate of 18.4. Accepting the earlier conclusions of qualified observers in the Southern states that malaria was relatively rare among the slave population, or that, in other words, the African negro was more or less immune to the disease, there has obviously been a complete change in this respect, for every investigation proves conclusively that malaria is to-day decidedly more common among the colored than among the whites in the Southern states.* In the furtherance of a more scientific study of the relative incidence of the disease, by race and age, the following table is included:

TABLE V.—MORTALITY FROM MALARIA, BY RACE AND AGE. Five Southern Cities, 1906-1912.

	Whites		Colored	
Ages	Deaths from Malaria	Rate per 100,000 Population	Deaths from Malaria	Rate per 100,000 Population
Under 5 yrs...	78	10.0	131	67.3
5- 9	21	2.8	39	19.3
10-10	47	3.0	108	25.3
20-39	158	5.2	280	26.3
40-59	121	6.8	174	36.0
60 and over ...	90	16.8	86	64.3

*See in this connection the opposite conclusion advanced in the report on the Malarial Fevers of Baltan. Thayer and Hewetson, Balt. 1895, p. 70.

According to this table the malaria rate for the colored very materially exceeds the corresponding rate for the white population at every divisional period of life. The table is thoroughly representative and includes a sufficient population to make the rates trustworthy and conclusive.

In consequence of the remarkable sanitary progress of the Southern states the mortality from malaria has materially decreased during recent years. For the purpose of emphasizing the relative effect of these changes on the malaria death rate of the two races, the following table has been prepared for nine typical Southern cities, with comparative returns for the periods of 1904-08 and 1909-13:

TABLE VI.—COMPARATIVE MORTALITY FROM MALARIA, Nine Southern Cities, 1904-1913.

Race	Death Rate per 100,000 of Population		Decrease	
	1904-08	1909-13	Actual	Per Cent
White	16.4	9.5	6.9	42.1
Colored	71.7	46.7	25.0	34.9
Total	35.8	22.1	13.7	38.3

The table brings out the striking fact that the sanitary progress of Southern cities has been of decided benefit to both races. The actual diminution in the malaria mortality of the colored race is, in fact, nearly four times the decrease in the white race, but the relative diminution during the period under observation was 42.1 per cent. for the whites, against 34.9 for the colored. During 1904-08 the number of deaths from malaria among the colored was equal to 437 to every 100 among the white population. During 1909-13 the corresponding ratio was 492. The relative diminution in malaria mortality was, therefore, distinctly less among the colored regardless of a very material actual decrease. In other words, the effect of race is once more, in the case of this illustration, shown to be of more profound importance than the effect of changes in environmental conditions.

It would serve no purpose to enlarge in detail upon the diminution in the mortality from malaria of the principal Southern cities. The reduction in the death rate in the case of the principal Southern cities during the five years ending with 1908, in comparison with 1909-13, are shown in the table following:

TABLE VII.—CHANGES IN THE MALARIA DEATH RATE OF Eight Southern Cities, 1904-1913.

(Death Rates per 100,000 Population)

City	Total Population		White Population		Colored Population	
	1904-1908	1909-1913	1904-1908	1909-1913	1904-1908	1909-1913
Charleston, S. C....	37.8	28.4	22.0	17.1	51.2	38.7
Memphis, Tenn. ..120.4		80.2	67.5	41.4	190.4	139.8
Birmingham, Ala...	*	22.5	*	10.4	*	41.2
Montgomery, Ala...	65.7	52.9	25.5	15.5	101.3	90.1
Mobile, Ala.**.....	36.3	60.6	19.5	24.5	57.4	106.1
New Orleans, La...	16.1	9.3	12.2	6.1	27.0	18.3
Galveston, Tex. ...	5.4	8.7	1.1	6.9	20.4	14.9
San Antonio, Tex...	17.5	13.9	17.6	12.9	16.9	21.6

*No data available. **Periods 1906-09 and 1910-13.

The preceding table emphasizes the remarkable sanitary progress throughout the South as made evident in the reduction in the mortality from malaria. The table further emphasizes the greater difficulty of malaria eradication in the case of the negroes. As shown by the investigations carried on by the U. S. Public Health Service, under the direction of Dr. R. H. von Ezdorf, the extent of the disease is practically universal throughout the South, but the disease is by no means uncommon in the Northern and Central states, and is relatively of considerable practical importance in the great central valley of California.

The malaria surveys under the direction of the U. S. Public Health Service are, however, far from being as thoroughly scientific, comprehensive and conclusive as the urgency of the situation demands. They are, broadly speaking, only tentative inquiries, and, as a rule, the conclusions based on the returns must be accepted with caution on the side of extreme conservatism. The malaria index for particular counties is, broadly speaking, invariably insufficient in view of the relatively small number of persons examined. What has been done in this direction is indicative of a much more serious situation than is disclosed by superficial considerations based on mortality returns alone. The investigations by Herms, in California, illustrate the scientific and practical value of malaria surveys and of public educational campaigns based upon such investigations, with a due regard to the economic interests concerned. Of special value in this direction is the California effort to correlate malaria campaigns to the health condition of rural school children and the taxable values of the communities concerned.

As yet, however, no effort at malaria eradication has been made in this country corresponding to the work which has been done in certain portions of India, in Mauritius, on the isthmus of Suez, and in certain sections of West Africa. Of course, in the countries and localities referred to, the situation was distinctly more alarming and often fatal to the settlement of Europeans under tropical conditions of life, than in this country. There are, however, vast areas, even in the United States, such, for illustration, as the Yazoo Delta region of Mississippi, which have been enormously hindered in their development by the relative frequency of malaria often in a most serious form. The same conclusion applies to certain sections of North Carolina, South Carolina, Georgia, Florida, Alabama, and Louisiana. There is the most urgent need for a strictly scientific determination of the true incidence of malaria as measured by the spleen rate, in conformity to the methods successfully carried through by the Malaria Committee of Bengal. An exact delineation of the areas in which black-water fever, or malarial hæmaturia, occurs would be of the first order of importance in the furtherance of a nation-wide effort at malaria eradication. Left to time, of course, the disease will gradually be eliminated by the economic progress of the nation, the improvement of the land, the introduction of drainage systems, etc., but many years must pass before this ideal condition is likely to exist. The practical elimination from sections in the Northern states in which intermittent fevers were exceedingly common during the early period of settlement is chiefly attributable, if not entirely so, to economic progress rapid increase in population demanding drainage, sewerage, etc. The same result will unquestionably be experienced in the South in the course of many years. There are the strongest possible reasons for believing that if the true facts regarding malaria frequency were better understood a material improvement would be brought about in the existing situation on the basis of educational efforts such as have been suggested in a well-written circular recently issued by the Public Health Service, and a more or less corresponding publication issued by the Department of Agriculture. The several state boards of health have also issued brief descriptive circulars of much practical value. The entire movement for malaria eradication, however, requires to be centralized in much the same manner as this has been done in the

case of nation-wide efforts against infant mortality, tuberculosis, cancer, etc. Such a movement should be under the auspices of the American Medical Association, and it seems particularly fitting that the same should have the endorsement of the Southern Medical Association, the American Society for Tropical Medicine, and of all the local Southern medical societies, and of all other states in which malaria is of relatively common occurrence. In course of time the work of the National Committee should be extended to Hawaii, Porto Rico, and the Panama Canal Zone. In the furtherance of such an effort it is proposed to organize a National Committee on the Study and Prevention of Malaria, and among others the following have given the movement the weight of their endorsement:

Dr. C. C. Bass, Professor Experimental Medicine, Tulane University, New Orleans, La.

Dr. Rupert Blue, Surgeon General, United States Public Health Service, Washington, D. C.

Dr. Henry R. Carter, Assistant Surgeon General, United States Public Health Service, Baltimore, Md.

Dr. C. F. Craig, Captain, Medical Corps, United States Army, Fort Leavenworth, Kans.

Dr. W. H. Deaderick, author "Textbook on Malaria" and "Endemic Diseases of the Southern States," Hot Springs, Ark.

Dr. W. E. Deeks, General Superintendent, Medical Department, United Fruit Company, New York, N. Y.

Dr. Oscar Dowling, President, Louisiana State Board of Health, New Orleans, La.

Dr. R. H. von Ezdorf, Surgeon, United States Public Health Service, New Orleans, La.

Major General W. C. Gorgas, Surgeon General, United States Army, Washington, D. C.

Dr. Frederick R. Greene, Secretary, Council on Health and Public Instruction, American Medical Association, Chicago, Ill.

Dr. Seale Harris, Editor-in-Chief, *Southern Medical Journal*, Birmingham, Ala.

Dr. Frederick L. Hoffman, Statistician, Prudential Life Insurance Company, Newark, N. J.

Mr. L. O. Howard, Entomologist, United States Department of Agriculture, Washington, D. C.

Mr. Arthur Hunter.

Mr. J. A. LaPrince, Sanitary Engineer, United States Public Health Service, Washington, D. C.

Dr. Jos. Y. Porter, State Health Officer of Florida, Jacksonville, Fla.

Dr. W. S. Rankin, State Health Officer of North Carolina, Raleigh, N. C.

Dr. M. J. Rosenau, Professor Preventive Medicine and Hygiene, Harvard Medical School, woston, Mass.

Dr. E. R. Stitt, Captain, Medical Corps, United States Navy; Professor Tropical Medicine, George Washington University, Washington, D. C.

Dr. John M. Swan, Secretary, American Society of Tropical Medicine, Rochester, N. Y.

Dr. W. S. Thayer, Professor Clinical Medicine, Johns Hopkins Medical School, Baltimore, Md.

Dr. Robert Wilson, Jr., Dean, Medical College of the State of South Carolina, Charleston, S. C.

It is sincerely to be hoped that such a committee will be formed and that its efforts will be co-ordinated in the most practical manner to the existing efforts of the Federal Public Health Service, the state and municipal boards of health, medical societies, the Rockefeller Foundation, etc. It is also anticipated that the work will obtain the active co-operation of the American Society for Tropical Medicine, of the Schools of Tropical Medicine of Tulane University, Louisiana, and Harvard University and of the Rockefeller Sanitary Commission. The movement should rest largely, if not exclusively, upon the principle of purely voluntary effort and active official co-operation. The effort, in the main, should be along the lines of the work of the Malaria Committee of India, including, first, public education; second, scientific malaria surveys; third, scientific research; fourth, statistical research; fifth, general problems such as legislation, municipal ordinances, drainage and irrigation projects, etc.

The practical difficulties no doubt are serious, but they can and will be overcome in time. Admirable illustrations of modern American conceptions of the plan and scope of such an effort are the extended references to prophylaxis in Craig's treaties on Malaria, Gorgas, "Sanitation at Panama," and the recent work by Le Prince on "Mosquito Control at Panama." For a concise outline of the methods followed to advantage in India the Proceed-

ings of the Imperial Malaria Conference held at Simla, October, 1909, and the Transactions of the Committee for the Study of Malaria in India, published in the several issues of Paludism, should be consulted, aside, of course, from the classical work by Ross, on the Prevention of Malaria, which includes important special contributions from practically all the malarial regions throughout the world.

CURRENT LITERATURE.

New Method of Making Anti-Hog Cholera Serum (Journal of Agricultural Research, U. S. Dept. of Agriculture).

A new method of preparing anti-hog-cholera serum, which permits the economical production of a clear sterilized product, has just been described. The advantage claimed for the new method is that it makes possible the production of an anti-hog-cholera serum which can be quickly sterilized by heat to a point that will absolutely kill any germs of foot-and-mouth disease and so yield a serum that is absolutely safe even if taken from a hog which might harbor foot-and-mouth disease and yet give no indication of being infected.

The method, as described by its discoverers, Dr. Marion Dorset and R. R. Henley, of the Biochemic Division, Bureau of Animal Industry, consists in adding a slight amount of an extract from ordinary white navy beans to the defibrinated hog-cholera-immune blood which has been the form of the serum used in the past. The addition of this bean extract causes the red cells of the blood to agglutinate and when the mixture is whirled on a centrifuge the red cells pack together and form a rather stiff jelly-like mass. It is then possible to pour off a clear serum, leaving behind the red cells which play no part in preventing hog cholera and which in fact simply tend to dilute the serum and render its sterilization by heat impracticable. To increase the yield of clear serum the discoverers added a small amount of ordinary salt and found that they obtained from 70 to 74 per cent of clear serum. The clear serum thus obtained, it was found, could be heated for 30 minutes at a temperature of 60 degrees centigrade without changing its consistency or lessening in any

way its effectiveness in preventing hog cholera. The heating to this point for this time is more than sufficient to kill any germs of foot-and-mouth disease which might accidentally be present. Practical tests with hogs show that probably all of the antibodies useful in combating hog cholera were retained in the serum and the red cells extracted contained so few, if any, of these valuable bodies as to make the residue of red cells useless in preventing the disease.

Before the clear serum was developed, many attempts were made to sterilize by heat in a practical way the ordinary defibrinated blood. It was found, however, that heating the old product up to 100 degrees centigrade resulted in more or less complete coagulation of the defibrinated blood and in the destruction of the serum so far as its commercial worth is concerned. It was found that the highest temperature that could be used was 50 degrees centigrade, and it was necessary to keep the old serum at this temperature for 12 hours to make certain that the virus of foot-and-mouth disease was killed. Heating serum at a steady temperature over this long period in ordinary practice is difficult and too expensive.

Attempts also were made to make a clear serum by centrifugalizing. It was found, however, that while the centrifuge would separate to some extent the red cells, they were in such shape that it was difficult to separate the serum completely. An important quantity of antibodies were left behind in the red clot, and the resulting product was a cloudy rather than a clear serum. With this process, moreover, it was possible ordinarily to secure only about 50 per cent of serum. Under the new method it is possible to secure as high as 74 per cent of clear serum, which in actual test has proved to be fully potent. This clear serum, moreover, can be completely sterilized in 30 minutes, whereas the old serum had to be heated steadily for 12 hours.

The new form of serum, as far as the department knows, is not yet being made or put on sale by the commercial serum laboratories. As this process was discovered by the Federal government, anyone in the United States is free to use it.

Trichinosis.— William Lintz, Brooklyn (*Journal A. M. A.*, June 10, 1916), adds three more cases to his record of the presence of the *Trichina spiralis* in the cerebrospinal fluid. The fluids

in which they were found were apparently normal. His discovery has been confirmed by other observers and if the parasite is found to be fairly constant in the cerebrospinal fluid the method clinches the diagnosis rapidly as few other single procedures do.

Coccidioidal Granuloma.—S. T. Lipsitz, J. W. Lawson, and E. M. Fessenden, St. Louis (*Journal A. M. A.*, April 29, 1916), report a case of coccidioidal granuloma, the first case in Missouri and the third occurring in a patient who had not been in California, as far as known. The disease is not of protozoan origin, but is due to a yeast organism, as shown by Ophuls, and Wolbach. While the case is similar in most respects to those previously reported, its duration was the shortest on record and was accompanied with a high sustained fever and marked leukocytosis, the time elapsing between the first symptoms and death being only about fifty-two days. The condition closely simulates acute tuberculosis in many respects, and while the organism resembles that of blastomycosis, treatment adapted for that disease failed and it appears to be much the more fatal of the two. Excepting for one or two cases treated surgically, as by early amputation, this disease does not appear to be amenable to any form of treatment.

Streptothrix in Rats.—In a preliminary report of examination and cultural experiments causing the discovery of a streptothrix in the diseased rats similar to that found in cultures from the lesions from rat-bite fever, Ruth Tunnicliff, Chicago (*Journal A. M. A.*, May 20, 1916), describes the organism in cases of a common form of bronchopneumonia in rats. In fifty-six white rats suffering from the disease that were examined out of sixty with the acute or chronic disorder, a long, fine, straight, or wavy filamentous organism was observed in smear preparations or by dark field illumination. They were most abundant in acute lesions. It is a gram-negative organism staining fairly distinctly with carbogentian-violet and the Giemsa stain. They are barely visible in tissues stained with methylene blue but are distinct in tissues impregnated with silver nitrate according to Levaditi's method. They were not observed in twenty-four normal rats. A streptothrix resembling these organisms was cultivated from twenty rats and isolated in pure culture thirteen times. Cultures from thirty-three rats remained sterile, but why this was so is undetermined. The character of the lesion does not seem to

make any difference. A number of other organisms were isolated from twenty-two rats, namely, streptococci, pneumococci, staphylococci, diphtheroid bacilli, anaerobic spirilla, and a profusely growing gram-negative bacillus which was probably a contamination. Other details are given. Young healthy rats injected intraperitoneally with cultures show acute lesions in the lungs. A streptothrix appears to be the same as the *Streptothrix muris ratti* isolated in pure culture from the blood of patients with rat-bite fever by Schottmuller and Blake, and seen in the blood during the paroxysms of Tileston. Rats causing rat-bite fever have not been examined as far as known but the author has examined twenty-eight wild rats and found one infected. The lesions in the lung were the same as those observed in the white rats and showed the same organisms.

Granuloma Pyogenicum.— C. D. Wescott, Chicago (*Journal A. M. A.*, June 24, 1916), reports a case of granuloma pyogenicum occurring in a boy aged 9, and affecting the eye. It was located just above the edge of the left upper lid and caused serious anxiety for fear of cancer, the disease of which the child's father had died. Wescott gives an account of the growth which has caused considerable clinical, pathologic and bacteriologic confusion in medical literature. The two conditions simulating it are cancer and chancre. Although persistent and liable to recurrence, it is usually treated without too much difficulty. The tumor in this patient was removed and the wound cauterized; it healed without infection, leaving a very small scar, and has not recurred to date.

NEWS AND COMMENT.

Medical Milk Commission Meets.—At the annual meeting of the American Association of Medical Milk Commissions, held at the Cincinnati General Hospital, June 10, Dr. Walter D. Ludlum, Brooklyn, was elected president; Dr. Otto P. Geier, Cincinnati, secretary (re-elected); William J. Graf, Cincinnati, assistant secretary; J. P. Sedgwick, Cleveland, treasurer, and Henry F. Price, Pittsburgh, member of the council.

Red Cross Hospitals for Border.—A fund of $200,000 is being raised by the Chicago chapter of the Red Cross for the creation and operation of four base hospitals on the border and

four hospital columns on lines of communication with troops. These hospitals and columns will be fully equipped, with a full complement of physicians, nurses and all necessary assistants. Supplies for wounded men and for troops will be purchased, dependent families of national guardsmen will be cared for, and a general fund for miscellaneous needs occasioned by war will be maintained.

FACTORS WHICH INCREASE TUBERCULOSIS.—The United States Public Health Service recently made a survey of tuberculosis in Cincinnati. It was found that the tuberculosis death rate in that city was fifty per cent above the average and double that of Pittsburg; that poverty was a vital factor in the spread of the disease, the tenement districts producing a tuberculosis mortality three times as great as the areas with better housing conditions, or where the family income was the smallest, tuberculosis was most prevalent; that alcoholism was likewise a prominent factor in causation, and that consequent dissipation, with overcrowding and lack of personal responsibility, aided in the propagation of the disease.

PROPOSES A NATIONAL SCHOOL OF HYGIENE.—It has been announced from Baltimore that the Rockefeller Foundation purposes to establish in that city as an integral part of the Johns Hopkins University, a National School of Hygiene and Public Health. It is proposed to erect a building to cost about $200,000, with running expenses of about $75,000 annually. Dr. Welch, professor of pathology at Johns Hopkins, and Dr. Wm. H. Howell, professor of physiology, will undertake the work of organizing the school. It is planned to open the school in October, 1917. Educating the public by exhibits, lectures and other means, with a view to better appreciation and understanding of the importance of public and personal hygiene and in co-operative efforts for the training of public health nurses, are the objects for the establishment of the school.

EXAMINATION FOR NAVAL MEDICAL CORPS.—The next examination for appointment in the Medical Corps of the Navy will be held about August 7, at Washington, D. C.; Boston, New York, Philadelphia, Norfolk, Charleston, S. C.; Great Lakes, Ill.; Mare Island, Cal., and Puget Sound, Wash. Applicants must be citizens of the United States and must show evidence of preliminary and medical education. The first feature of the exami-

nation is for appointment as assistant surgeon in the Medical Reserve Corps and embraces anatomy, physiology, materia medica and therapeutics, general medicine, general surgery and obstetrics. The successful candidates then attend a course of instruction at the Naval Medical School, which will begin about October 1. During this time candidates will receive a salary of $2,000 a year with allowances for quarters, heat and light, and at the end of the course, if successful, will be commissioned as assistant surgeons in the navy to fill vacancies. Fuller information may be obtained by addressing Surgeon-General of the Navy, Washington, D. C.

Southern Railway Surgeons Elect Officers.—At the meeting of the association held in Chattanooga, Tenn., June 6 and 7, the following were elected officers: President, Dr. Cooper Holtzclaw, Chattanooga; vice-presidents, Dr. Wm. H. Armstrong, Rogersville, Tenn.; Dr. T. F. Robinson, Bessemer, Ala.; Dr. Julius H. Taylor, Columbia, S. C., and Dr. Henry McHatton, Macon, Ga.; secretary-treasurer, Dr. Jacob V. Ray, Woodstock, Ala.

Gift for Tuberculosis Investigation.—Through the generosity of Dr. Kenneth Dows, of New York, Johns Hopkins University, Baltimore, has recently received $95,000 for the investigation of tuberculosis and the better teaching of physicians and medical students in the recognition and management of the disease and the care of patients.

Democratic Public Health Plank.—The Democratic party at its convention in St. Louis, June 16, adopted the following plank in its platform: "We favor a thorough reconsideration of the means and methods by which the Federal Government handles questions of public health, to the end that human life may be conserved by the elimination of loathsome diseases, the improvement of sanitation, and the diffusion of a knowledge of disease prevention. We favor the establishment by the Federal Government of tuberculosis sanitariums." The New York *Medical Record*, commenting on this plank, says: "The second sentence is badly worded, but intelligible enough; what is meant by the beginning of the first sentence can only be guessed at."

As We Value Ourselves.—A story is told of a young east side physician in New York City, who spends much of his time in charitable practice. On one occasion the doctor visited a

woman living in a small tenement room with her three children. He made out a prescription and presented her with two dollars, telling her to buy the medicine and use the change for needed food. The next day, on entering the tenement for a second call, he met the ten-year-old daughter of the patient, and inquired of the child how her mother was faring. "Oh, she's well," said the child. "She took that two dollars and got a real doctor."

EXPERIMENT ON TUBERCULOSIS.—The Metropolitan Life Insurance Company has presented the National Association for the Study and Prevention of Tuberculosis $100,000 for the purpose of demonstrating by a community experiment, for three years, that tuberculosis can be controlled as any other infectious disease if right methods and adequate resources are available. The plan is to select a town or city of about 5,000 inhabitants, probably in New York or Massachusetts, and apply there all the knowledge and treatment of tuberculosis available, with the view of ultimately eradicating the disease.

BALTIMORE QUARANTINE STATION TRANSFERRED.—The campaign for the transfer of the Baltimore quarantine Station to government control, which has been carried on by Dr. Mydeger, of the Public Health Service, for the past three years, has been successful. This is the last station in the country to go under national control.

MEDICAL SCHOOLS TO MERGE.—The plan to merge the three big medical schools of Philadelphia, the medical department of the University of Pennsylvania, the Jefferson Medical College, and the Medico-Chirurgical College, under one head, thus forming the largest medical school in the United States, has been completed. This plan, it is believed, is largely the result of the urging of the directors of the Carnegie Foundation, who are of the opinion that Philadelphia is supporting too many medical schools.

ANTI-VIVISECTION BILL NOT APPROVED.—The anti-vivisection bill which was passed at the last session of the legislature in California, failed to receive the approval of the governor of that State.

RAILROAD CASUALTIES.—The Interstate Commerce Commission has just issued a report stating that there were 2,531 people killed in the United States and 43,518 injured, during the three months ending September 30, 1915. As compared with figures

for the same quarter in 1914, there is a good net decrease shown.

PHYSICIANS IN THE UNITED STATES.—It is estimated that there are 150,000 physicians in the United States, according to the *Medico-Legal Journal,* or one physician to every 667 people.

SOUTHWESTERN MEDICAL JOURNALS MERGE.—The publications of the Southwest Medical and Surgical Association and the Arizona State Society will be merged with the *Bulletin* of the El Paso, Texas, County Medical Society. The new journal will be known as *Southwestern Medicine,* and Dr. M. B. Wesson, of El Paso, editor of the *Bulletin,* will edit the consolidated journal. The merger began with the July issue.

CATS AND DIPHTHERIA.—The recent outbreak of diphtheria in a London orphanage was traced to cats. In the investigation, after eliminating such factors in the production of the disease as contaminated water supply, sanitary defects, food, etc., the physician in charge realized that there must be a bacillus carrier and turned his attention to the cats, taking a swab from all their throats. On examination it was found that the four cats from the boys' side of the orphanage, where the majority of the cases prevailed, were suffering from diphtheria. The four cats on the girls' side, although showing other micro-organisms in profusion, did not have the true diphtheria bacillus. The cats were destroyed and after a few days no more cases occurred.

NEW ORLEANS DEATH RATE DECREASES.—The deaths in the city of New Orleans for the six months ending June 30 were 539 fewer than for the same period last year. The total during the first six months of 1915 was 3,975 and for the six months just ended 3,436. The mortality of communicable diseases for June shows a decrease of 50 per cent compared with June last year, or May this year. Since 1911, when the disease was placed on the list of communicable diseases to be reported, there have been forty-six cases known and only two deaths of infantile paralysis. A remarkable decline in deaths of children from intestinal diseases is reported.

TUBERCULOSIS HOSPITAL GIVEN MORE FUNDS.—Mrs. John Dibert of New Orleans has added $103,000 more to the $200,000 already donated for the establishment of the institution to be known as the John Dibert Tuberculosis Hospital. Plans for the hospital have been received and will include a three-story, fire-proof building, with a large recreation pavilion in the center

on each floor, an administration section, an operating room, a free clinic, and other desirable features. The building will cost $150,000. The city of New Orleans has donated the site and will appropriate $10,000 a year for the hospital.

PARKE, DAVIS & COMPANY'S NEW CATALOG.—Parke, Davis & Company announce the publication of their 1916 price list. It is said to be an improvement over any previous issue, and its amplitude, handy classification, comprehensive general index, will no doubt serve to make it a reference book of value to medical practitioners. Copy can be obtained by applying to Parke, Davis & Company, Detroit, Mich.

AGAINST ALCOHOLISM.—The Union des Françaises contre l'alcohol (Union of French Women Against Alcohol) has been recently organized. A vast series of petitions to parliament and to public authorities, and a great public manifestation against alcoholism, are some of the features of its campaign. The union insists on the principle that private interests must give way before those of the country, and, when it is the question of the general lives of millions of beings, one must not stop at half measures. The petition demands the abolition of the privilege of the small distiller, the suppression of spirits for drinking, and the development and encouragement of the use of industrial alcohol.

INFANTILE PARALYSIS IN NEW YORK.—The discovery of a group of cases of infantile paralysis in Brooklyn was made some time in May by the health department. It was stated in the beginning that the cases were mild in character, occurring principally in infants and very young children, but the disease has now reached the epidemic stage and is spreading rapidly. The United States Public Health Service has taken up the question of the origin of the disease and its transmission. In the meantime the demand for immediate relief is paramount and national, state and city governments are co-operating, together with thousands of citizens, in their work to eradicate the disease. Isolation and quarantine of all attacked by the disease, and a thorough sanitary fight looking to making the city as clean as possible, is the plan of campaign. It would be well for the rest of the country to take warning from New York's experience and put themselves in good sanitary condition at once. Even if filth does not generate and propagate the malady, trash piles and

dirty streets and tenements offer a possible hiding place for the germs.

Novocain Not Under Harrison Act.—Novocain, a synthetic chemical, was recently determined by a jury in a United States Court to be without the prohibitory provisions of the Harrison Anti-Narcotic Law in that it was not a derivative or compound of opium or coca leaves. It is a local anesthetic extensively used by physicians and dentists, and is imported and dispensed in the United States to professional men by the Farbwerke-Hoechst Company. Under a ruling of the Treasury Department that any synthetic substitute for cocaine was taxable under the Harrison Act, the Farbwerke-Hoechst Company paid, under protest, paid the tax to the Collector of Internal Revenue and brought action for the recovery of same, in order to demonstrate that novocain, holocain, orthoform and anesthesin were not derivatives of coca leaves or opium, and contained no habit-forming drugs.

Journal Discontinued.—Announcement has been received that the *Cincinnati Medical News* has been discontinued. Dr. A. G. Kreidler, formerly editor of the *News,* is now the editorial staff of the *Lancet-Clinic.*

Personals.—Dr. Isadore Dyer returned during the month from Fort Sam Houston, San Antonio, Texas, where he was ordered on temporary duty as a member of the Medical Reserve Corps. Dr. Rudolph Matas with Dr. Dyer served as an examining board for applicants to the regular army medical corps at the examinations held in New Orleans, July 17 to 22, inclusive.

Dr. J. T. Halsey (New Orleans) is spending the summer with his family at Bernardsville, N. J.

Dr. M. Feingold (New Orleans) is still enjoying a long-needed rest in Colorado, but expects to return for the opening of college.

Several Louisiana members of the Medical Reserve Corps are on duty with the army services along the border and in Texas: Dr. H. B. Gessner, at Nogalez, Arizona; Dr. J. F. Dunshie, at Ajo, Arizona; Drs. L. C. Scott, Trepagnier and LaCroix, at Fort Bliss, Texas; Drs. J. A. Bethea and A. E. Graham, at Fort Sam Houston; J. C. Willis, at Brownsville, Texas.

Dr. C. C. Bass (New Orleans) has returned from his vacation in Honduras, Central America, where he was engaged in a malarial survey of several plantations near Ceiba.

REMOVALS.—Dr. O. H. Burton, from Hot Springs to Crystal Springs, Ark.

Pediatrics, from 25 East 60th Street, to 355 West 145th Street, New York City.

Dr. I. N. Adams, from Jena, to Selma, La.

Dr. K. Winfield Ney, to 1204 Maison Blanche Building, New Orleans.

Dr. Lionel Paget Player, to 509-516 Sutter Street, San Francisco, Cal.

MARRIED.—On June 28, 1916, Dr. William Plummer Bradburn, of NewOrleans, to Miss Mary Annie Pearce, of Sarasota, Florida.

PUBLIC HEALTH NOTES.

The annual meeting of the American Association of Medical Milk Commissions was held at Cincinnati, on June 10.

Professor S. M. Gunn, director of the division of hygiene of the Massachusetts State Department of Health, has resigned and Dr. Lyman A. Jones has been named as his successor.

Since probably 50 per cent of the men working in mines in California are said to be affected with hookworm disease, the State Board of Health will hereafter issue certificates stating whether the men are free, cured or suffering from hookworm.

The annual meeting of the American Public Health Association will be held in Cincinnati, October 24 to 27. The six sections into which the association is divided are: Public Health Administration, Laboratory, Sanitary Engineering, Vital Statistics, Sociology, and Industrial Hygiene.

Beginning in September of this year, a course for public health nurses will be given in the Medical College of the Ohio State University. The principal object of the course is to supplement the education received at schools for nurses, in order that the women who take up public health nursing may be familiar with and proficient in all phases of public health work.

Plans have been completed for the erection in the city of Washington of a series of model homes, to be known as the Ellen Wilson homes. Congress has enacted a law to go into effect July 1, 1918, prohibiting the use of alley dwellings in the District of Columbia. Notwithstanding many attempts at sanitation and improvement, the morbidity and mortality in these districts has always been high.

Yale University is to have a board of health which will supervise the physical and medical examinations of students, inspect dormitories, assembly halls and other buildings, etc. The board will consist of Dr. Frederick S. Jones, dean of the college; Dr. Russell H. Chittenden, director of the Sheffield Scientific School; Dr. George A. Blumer, dean of the medical school; the professor of public health, the professor of bacteriology and hygiene, the treasurer of the university, the director of the gymnasium, and the chairman of the athletic committee.

The members of the International Health Board of the Rockefeller foundation who have formed a commission to study tropical diseases sailed on June 14 for South America. Gen. William C. Gorgas, U. S. A., who obtained a four months' leave of absence for the purpose, is at the head of the commission, and the other members are: Assistant Surgeon General Henry R. Carter, U. S. P. H. S.; Dr. Juan Guiteras, head of the Public Health Service of Cuba; Major Theodore C. Lyster, M. C., U. S. A.; Sanitary Engineer William D. Wrightson, U. S. P. H. S., and Harry H. Wakefield, secretary. The commission will go to Caracas, Venezuela, and then to Colon, will cross the Isthmus and go down the western coast of South America, stopping at Guayaquil, Ecuador, and Manaos, Pernambuco, and Bahia, Brazil.

BOOK REVIEWS AND NOTICES

Post-Mortem Examinations. By William S. Wadsworth, M. D. W. B. Saunders Company, Philadelphia and London, 1915.

This book on Post-Mortem Examinations takes up the subject from every viewpoint and considers the various aspects in their minutest details. The author has divided the book into six parts, each of which is more or less distinct, yet has a bearing on the others. In his introductory remarks, he mentions the various reasons for which a post-mortem examination may be done and describes rather briefly the reasons under the several headings. While the average physician is interested in a post-mortem only to determine the cause of death, the author emphasizes several other reasons. He describes quite clearly and accurately a good mortuary and its equipment, as well as all the instruments necessary for an autopsy.

In the part devoted to the examinations of the body, he considers every possible change in the external appearance and by means of clear photographs shows the results or effects of death from violence, drowning, asphyxiation, electrocution, etc. The part on the inspection of the internal organs is equally as good.

The book is very extensively illustrated, there being over 300 original illustrations, most of which are photographs. These photographs show every conceivable object used in the performance of an autopsy and covers most of the various steps ordinarily followed. There are also several interesting charts useful in keeping records of the autopsy findings.

The book should appeal especially to coroners and men particularly interested in the subject of post-mortems from a medico-legal aspect, as the author considers the subject more from that angle and devotes quite an interesting part to medical evidence. It should also appeal to those men who look upon the performance of an autopsy as an easy task.

The author impresses one with his knowledge of the subject and for the most part his style is quite pleasing. The manner in which he pleads for a humane personal attitude to a dead body is unusual, yet none the less gratifying.

J. A. Lanford.

The Principles and Practice of Obstetrics, by Joseph B. DeLee, M. D. W. B. Saunders and Company, 1915.

When the first edition of this magnificent book appeared two years ago, it received immediately the enthusiastic approval of the medical profession. No publication in the English language approached it in the amount of material condensed into one volume and the profuseness of illustrations. It approaches an encyclopedia in detail, yet its arrangement is such that it proves to be an excellent textbook for students and, at the same time, the most convenient reference work for the busy practitioner.

The first edition was rewritten several times and a second edition became necessary in two years, which proves without further comment the need for such a work.

The first distinctive feature of the text to attract attention is the illustrations. Dr. DeLee has managed to introduce nearly 1,000 illustrations covering every phase of the text, the majority of which are original.

It would not be possible to comment in detail on the arrangement of various views expressed in the subject matter. Every phase of modern obstetrics has been carefully considered. The very latest subjects, "Twilight Sleep," Gas-Oxygen Anesthesia, Abderhalden's Reaction, Blood Pressure in Pregnancy and Labor, Extra Peritoneal Cesarean Section, and other subjects of the day are set forth with accuracy and fairness.

The reader will soon appreciate that the author is thoroughly familiar with obstetrical literature and has combined with his knowledge of the subject a ripe experience, mature judgment and, withal, an enthusiasm for interesting details that adds a valuable feature, especially for students.

If any chapter of the book is worthy of special comment, I should recommend those dealing with toxemias and infections. The author here shows a knowledge of pathology and practical experience that makes his opinions especially valuable.

A review might include a discussion of some of Dr. DeLee's views on various subjects, but, from what has been already stated, we must agree that this book will materially assist in placing American obstetrics in the first rank of similar publications in any language.

Miller.

Cancer of the Stomach. A Clinical Study of 921 Operatively and Pathologically Demonstrated Cases. By Frank Smithies, M. D. With a chapter on Surgical Treatment of Gastric Cancer, by Albert J. Ochsner, M. D. W. B. Saunders Company, 1916.

This is a book of over 500 pages in which the author attempts to set forth facts which are considered valuable, from a study of 921 operatively and pathologically demonstrated instances of gastric cancer.

The cases and records comprised a part of the author's services extending over ten years at the University Hospital (Ann Arbor, Mich.), the Mayo Clinic and the Augustina Hospital.

The subject is divided into 12 chapters, dealing with every phase of gastric cancer, from the general distribution and etiology, to the non-surgical treatment.

The first chapter which would interest the reader in a book dealing with this subject would be the division on Symptomatology and Diagnosis. The author's tabulated statements as to the incidence of certain symptoms are extremely interesting and should naturally assist in impressing the careless practitioner of the extreme importance of systematic history taking. For example, in the group in which gastric cancer developed in patients with years of antecedent "dyspepsia" of the peptic ulcer type, 47.3 per cent showed that malignancy had been superimposed upon a previously benign type of dyspepsia. "The anamnesis alone brings out the characteristics of the disease in each of its stages." In the precarcinomatous period, he states, the average duration of all symptoms in the first stage of the ailment that were clinically benign was 10.5 years.

"This long antecedent history of gastric malfunction proves that the majority of our cases of gastric cancer did not develop in patients who had previously been in good health." In 90 per cent of such cases the histories showed "spells" of epigastric distress or actual pain.

Such statements, of which there are many, are impressive and have been arranged in a readable manner and not as dry statistics.

The chapter on the Examination of Gastro-Intestinal Function is rather lengthy and bristles with chemical formulae. The author is a staunch defender of the test meal in the diagnosis of cancer. He states that there are few clinical methods, and certainly no clinical laboratory procedure, which enables one to estimate the status of a given case of gastric cancer so quickly, accurately and inexpensively as does intelligent scrutiny of the test meal data. Unfortunately, however, he emphasizes at the beginning of this paragraph that he is considering well established cancer.

While marked progress has been made with X-ray as a diagnostic measure, Dr. Smithies does not believe it to be of special value until such complications as deformities, stenosis or adhesions to adjacent structures alters normal rela-

tions. The diagnosis must be made clinically and chemically.

Anyone who has had occasion to collect statistical data will appreciate the amount of work done in the preparation of this book, and the author deserves commendation for the manner in which it is arranged. The surgical world already knows Dr. Ochsner's ideas regarding surgery of gastric cancer. In this book he has given his views in a concise manner which could hardly be improved upon.

Miller.

Pulmonary Tuberculosis, by Maurice Fishberg, M. D. Lea & Febiger, Philadelphia and New York, 1916.

In the preface, the most interesting part of this book, the author gives his opinion that "incipient" does not always mean curable tuberculosis; and "advanced" disease does not necessarily indicate a hopeless outlook.

He pointedly brings out the relative value of the institutional and "home" treatments of tuberculosis. He attempts to make a sharp distinction between infection and disease, or tuberculosis and phthisis.

The chapters on Tuberculosis Infection, Phthisiogenesis, Pathology and Morbid Anatomy give a very concise expose of these important subjects.

Much stress is laid upon the clinical findings and personal history of the patient in diagnosis.

The author believes that active tuberculosis—manifested by symptoms of bacterial intoxication—is the only type of the disease necessitating a rigid enforcement of the "home" and "institutional" treatments.

Non-active tuberculosis is not considered at all in this book. There is nothing new presented in the chapters on Differential Diagnosis and Treatment.

Durel.

The Practitioner's Medical Dictionary, by George M. Gould, A. M., M. D. Third edition. Revised and enlarged by R. J. E. Scott, M. A., B. C. L., M. D. P. Blakiston's Son & Co.

In noticing this new edition of a standard dictionary we may quote the publishers who state that the object in presenting a new edition was to provide a modern dictionary that should be up to date and issued in a for mconvenient to handle and to be had at a low price ($2.75). With over 70,000 words, 962 pages, flexible binding, and clear and well arranged type, the book would seem to fulfil the publisher's intention.

The American Illustrated Medical Dictionary, by W. A. Newman Dorland, A. M., M. D., F. A. C. S. Eighth edition, Revised and Enlarged. W. B. Saunders Company, Philadelphia and London.

This popular dictionary grows in volume with each new edition, showing its response to medical advance.

The present edition contains 1135 pages, 331 illustrations, 119 in colors; 1500 new terms have been added.

Medical and Veterinary Entomology, by William B. Herms, The MacMillan Co., New York.

To the student of tropical diseases some knowledge of entomology is essential and it is especially gratifying that this work should have come from so authoritative a source.

The book is arranged from the standpoint of its application to disease and is presented in terms which any student may understand. The author puts the object of the book plainly in saying that it is an attempt to systematize the subject rather than an exhaustive treatise. Enough references are given to other texts, however, to afford wider studies for those interested.

Not only are the commoner disease bearing insects described and their association detailed, but considerable space is given to the discussion of prevention.

Altogether the work is timely and eminently worth while.

Dyer.

Nervous Children. Prevention and Management by Beverly R. Tucker, M. D. Richard C. Badger, Boston.

The author divides the general causes of nervous disorders in children into inheritance, environment and acquisition and proceeds to discuss these in deetail, correlating the physiological, physical and domestic phases of each division. Special diseases are touched upon, and the application of the essential ideas brought to bear upon these. The book is a co-ordination of essays on various phases of the general subject, without any idea of a systematic treatise. As expressing the views of a careful observer this little book is well worth reading. *Dyer.*

Bandaging, by A. D. Whiting, M. D. Illustrated. W. B. Saunders Company, Philadelphia and London.

With a multitude of excellent illustrations and with simple and explicit text all the bandages usually employed are demonstrated in this little book of some 130 pages. The work is practical and commends itself for the clear photo cuts showing the exact detail of each bandage discussed.

D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for June, 1916.

Cause.	White	Colored	Total
Typhoid Fever	4	2	6
Intermittent Fever (Malarial Cachexia)	.....	4	4
Smallpox	.....	.....	....
Measles	.....	.....	....
Scarlet Fever	.....	.....	....
Whooping Cough	.....	.....	....
Diphtheria and Croup	.....	1	1
Influenza	2	.....	2
Cholera Nostras	.....	1	1
Pyemia and Septicemia	44	48	92
Tuberculosis	34	5	39
Cancer	2	2	4
Rheumatism and Gout	3	.....	3
Diabetes	2	.....	2
Alcoholism	2	1	3
Encephalitis and Meningitis	.....	.....	....
Locomotor Ataxia	12	7	19
Congestion, Hemorrhage and Softening of Brain	2	2	4
Paralysis	1	.....	1
Convulsions of Infancy	10	7	17
Other Diseases of Infancy	1	2	3
Tetanus	3	.....	3
Other Nervous Diseases	52	33	85
Heart Diseases	2	3	5
Bronchitis	7	11	18
Pneumonia and Broncho-Pneumonia	4	4	8
Other Respiratory Diseases	.....	.....	....
Ulcer of Stomach	1	.....	1
Other Diseases of the Stomach	17	12	29
Diarrhea, Dysentery and Enteritis	3	1	4
Hernia, Intestinal Obstruction	8	3	11
Cirrhosis of Liver	4	2	6
Other Diseases of the Liver	1	.....	1
Simple Peritonitis	11	3	14
Appendicitis	22	22	44
Bright's Disease	10	10	20
Other Genito-Urinary Diseases	4	4	8
Puerperal Diseases	5	1	6
Senile Debility	4	1	5
Suicide	26	19	45
Injuries	13	28	41
All Other Causes			
Total	316	239	555

Still-born Children—White, 25; colored, 18; total, 43.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 13.74; colored, 28.12; total, 17.62. Non-residents excluded, 14.76.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 29.94
Mean temperature ..... 82.
Total precipitation ..... 9.70 inches
Prevailing direction of wind, southwest.